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**SUPERFUND REAUTHORIZATION 1994: DoD's
OPPORTUNITY TO CLEAN UP ITS HAZARDOUS WASTE ACT**

**A Thesis
Presented To**

The Judge Advocate General's School, United States Army

The opinions and conclusions expressed herein are those of the author and do not necessarily represent the views of either the Judge Advocate General's School, the United States Army, or any other governmental agency.

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**42D JUDGE ADVOCATE OFFICER GRADUATE COURSE
April 1994**

**SUPERFUND REAUTHORIZATION 1994: DoD's
OPPORTUNITY TO CLEAN UP ITS HAZARDOUS WASTE ACT**

BY MAJOR STEPHEN RUSSELL HENLEY

ABSTRACT: The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 was enacted to address the serious problem of hazardous waste contamination in the United States. Although the program has achieved some success, it has failed to achieve its primary purpose - the permanent cleanup of inactive and abandoned hazardous waste sites. With the taxing authority of CERCLA set to expire on September 30, 1994, Congress has an opportunity to address the program's failures and flaws. As this nation's largest polluter, the Department of Defense has a substantial interest in the progress and outcome of these reauthorization proceedings. This thesis examines three of the major issues facing the military in its attempts to clean up its hazardous waste legacy - consistency in remedy selection and risk assessment, defining the appropriate state role at military hazardous waste sites, and resolving land transfer issues under CERCLA section 120(h). This thesis identifies shortcomings in these areas and suggests specific amendments to the Superfund program. It concludes that these changes are necessary in order to establish clear and consistent rules governing the cleanup of hazardous waste by the military in the coming decades.

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SUPERFUND REAUTHORIZATION 1994: DoD'S
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When considering a problem as large as the degradation of the . . . environment, it is easy to feel overwhelmed, utterly helpless to effect any change whatsoever. But we must resist that response because this crisis will be resolved only if individuals take some responsibility for it [T]he choice is ours; the earth is in the balance.¹

I. INTRODUCTION

In response to mounting public concern over toxic waste,² Congress enacted the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, also referred to as "Superfund")³ in 1980. CERCLA is primarily a

¹ AL GORE, EARTH IN THE BALANCE: ECOLOGY AND THE HUMAN SPIRIT 366-68 (1992).

² See generally SAMUEL S. EPSTEIN ET AL., HAZARDOUS WASTE IN AMERICA 89-132 (1982) (chronicling events and public reaction surrounding toxic dumping).

³ Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Pub. L. No. 96-510, 94 Stat. 2767 (codified as amended at 42 U.S.C. §§ 9601-9675 (1988)). CERCLA is divided into two main subsections: Title I--Hazardous Substances Releases, Liability, Compensation; and Title II--Hazardous Substance Response Revenue. The fund is created under Title II and is the origin of the nickname "Superfund." After initial enactment in 1980, CERCLA was amended in 1986. Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613. CERCLA

remedial statute designed to take on one of this country's most pervasive and dangerous problems - the cleanup of tens of thousands of inactive and abandoned hazardous waste sites threatening public health and the environment.⁴

The Superfund program - originally envisioned as a short-term project⁵ to clean up a limited number of hazardous waste sites⁶ - has become an expensive,⁷

originally was to have expired on September 30, 1991, but Congress inserted language into the 1990 omnibus budget package reauthorizing the Act through the end of fiscal year 1994. Omnibus Reconciliation Act of 1990, Pub. L. No. 101-508, 104 Stat. 1388-319.

⁴ See HOUSE COMM. ON INTERSTATE AND FOREIGN COMMERCE, HAZARDOUS WASTE CONTAINMENT ACT OF 1980, H.R. REP. NO. 1016, 96th Cong., 2d Sess. pt. 1, at 22, reprinted in 1980 U.S.C.C.A.N. 6119, 6125; SENATE COMM. ON ENVIRONMENT AND PUBLIC WORKS, ENVIRONMENTAL EMERGENCY RESPONSE ACT, S. REP. NO. 848, 96th Cong., 2d Sess. 12 (1980). For CERCLA's legislative history, see ENVIRONMENT AND NATURAL RESOURCES POLICY DIVISION OF THE CONGRESSIONAL RESEARCH SERVICE OF THE LIBRARY OF CONGRESS FOR THE SENATE COMM. ON ENVIRONMENT AND PUBLIC WORKS, 96TH CONG., 2D SESS., [A] LEGISLATIVE HISTORY OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 (SUPERFUND) (Comm. Print 1983) (reprinting the legislative history of CERCLA in three volumes); Frank P. Grad, *A Legislative History of the Comprehensive Environmental Response, Compensation and Liability ("Superfund") Act of 1980*, 8 COLUM. J. ENVTL. L. 1 (1982) (detailing the history of CERCLA).

⁵ See U.S. CONGRESS, OFFICE OF TECHNOLOGY ASSESSMENT, COMING CLEAN: SUPERFUND'S PROBLEMS CAN BE SOLVED (Oct. 1989); H.R. REP. NO. 1016, *supra* note 4, at 17, reprinted in 1980 U.S.C.C.A.N. at 6120. Prior to the passage of CERCLA, both the Environmental Protection Agency and Congress believed that a site could be adequately cleaned up by "scraping a few inches of soil off the ground." U.S. GENERAL ACCOUNTING OFFICE, SUPERFUND PROGRAM MANAGEMENT 6 (Dec. 1992).

⁶ In 1979, the EPA estimated that there were between 30,000 and 50,000 hazardous waste sites in the United States, although EPA estimated that only 1000 to 2000 posed

contentious,⁸ and long term effort involving thousands of sites.⁹ Although the program has made some progress, especially in responding to emergency releases of hazardous substances¹⁰ and in enforcing cleanup obligations of

a serious risk to public health. H.R. REP. NO. 1016, *supra* note 4, at 18, reprinted in 1980 U.S.C.C.A.N. at 6120. The United States General Accounting Office estimates that a more comprehensive inventory of hazardous waste sites could boost this estimate to about 368,000. Paul Marcotte, *Toxic Blackacre: Unprecedented Liability for Landowners*, 73 A.B.A. J. 66, 67 (Nov. 1987). As of January 1994, the EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), a computerized system used to keep track of those hazardous waste sites eligible for remedial action, listed 38,848 sites. While there is no formal publication of this tracking system, one may gain access by calling the CERCLIS hotline at 1-800-424-9346.

⁷ According to most estimates, cleaning up this toxic mess may require hundreds of billions of dollars and decades of work. See, e.g., Steven Ferry, *Toxic Time Bomb: Municipal Liability for the Cleanup of Hazardous Waste*, 58 GEO. WASH. L. REV. 197, 198-99 (1988).

⁸ See, e.g., Raymond B. Ludwiszewski, *Superfund Liability At Issue*, NAT'L. L.J., June 14, 1993, at 29 (reauthorization is an opportunity to examine Superfund's retroactive, strict, and joint and several liability scheme); Gary Lee, *Private Panel Urges Changes in Superfund Cleanup Process*, WASH. POST, Dec. 22, 1993, at A2 (debate over various aspects of Superfund has divided lawmakers and members of the Clinton administration charged with preparing revisions in the legislation); Carolyn Hartmann, *Keep Superfund; It Works*, USA TODAY, Dec. 14, 1993, at 10A (plagued by corruption and underfunded through much of the 1980s, Superfund only recently has started to make progress); *Fix Superfund; It's Broken*, USA TODAY, Dec. 14, 1993, at 10A (Congress needs to go back to the drawing board).

⁹ See U.S. GENERAL ACCOUNTING OFFICE, *SUPERFUND: PROGRESS, PROBLEMS, AND REAUTHORIZATION ISSUES 1* (Apr. 1993).

¹⁰ See Frederick R. Anderson, *Negotiation and Informal Agency Action: The Case of Superfund*, 1985 DUKE L.J. 261, 267 n.12 (1985). Such emergencies can range from accidental

polluters,¹¹ a formidable task remains and difficult issues need to be addressed if the program is to operate efficiently and effectively.¹²

The taxing authority of CERCLA will expire on September 30, 1994;¹³ providing Congress with the ideal opportunity to address the program's status, direction, and flaws.¹⁴ As Congress prepares legislation to reauthorize the law, the

spills to serious public health or environmental threats posed by long-standing hazardous waste problems. Emergency removals include such activities as treating, removing, or containing wastes; installing site security; providing safe alternative water supplies; or relocating residents. The program's accomplishments in this area have been considerable; more than 3200 emergency actions have been taken at 2540 sites as of the end of fiscal year 1992. SUPERFUND: PROGRESS, PROBLEMS, AND REAUTHORIZATION ISSUES, *supra* note 9, at 3.

¹¹ From October 1989 through the end of fiscal year 1992, EPA estimates it has achieved responsible party settlements totaling \$5.4 billion. SUPERFUND: PROGRESS, PROBLEMS, AND REAUTHORIZATION ISSUES, *supra* note 9, at 3.

¹² *Id.* at 1.

¹³ See Omnibus Reconciliation Act of 1990, Pub. L. No. 101-508, 104 Stat. 1388.

¹⁴ In February 1994, Congress introduced two pieces of legislation amending the Comprehensive Environmental Response, Compensation, and Liability Act. The first, S. 1834, 103d Cong., 1st Sess. (1994), was referred to the Senate Committee on Environment and Public Works. The second, H.R. 3400, 103d Cong., 1st Sess. (1994), was referred to the House Committees on Energy and Commerce, Public Works and Transportation, and Ways and Means. As of April 4, 1994, action on S. 1834 and H.R. 3400 has been limited to congressional hearings. Passage of either bill as submitted is unlikely.

call for change is intensifying.¹⁵ Nearly every affected interest group -- from manufacturers, banks, federal, state and local governments, citizen groups, unions, landowners, and environmentalists -- has been critical of the cleanup effort's high cost and slow pace.¹⁶ The Department of Defense (DoD) must not be left out of the debate.¹⁷

II. ORGANIZATION AND SCOPE

Although some commentators have called for total reform

¹⁵ EPA Administrator Carol Browner is convinced "the time has come to fix the Superfund program." *Overhaul is Proposed for Law Governing Cleanups of Hazardous Waste Sites*, WASH. POST, Feb. 4, 1994, at A17. Browner is also concerned "too much money is going to the lawyers and not enough to cleanups;" while Sen. Frank Lautenberg (D-NJ), Chairman of the Superfund, Recycling, and Solid Waste Management Subcommittee of the Senate Committee on Environment and Public Works, wants to assure that sites in minority and low income communities get the proper amount of attention. *EPA Chief Decries Legal Bills of Superfund*, NAT'L. L.J., May 24, 1993, at 5. Even President Clinton believes "it's time that we used Superfund to clean up pollution instead of paying lawyers." William J. Clinton, Address Before A Joint Session of Congress (Feb. 17, 1993), in N.Y. TIMES, Feb. 18, 1993, at A21.

¹⁶ See *A Superfund Wish List*, 10 ENVTL. F. 30 (Sept.-Oct. 1993).

¹⁷ The reason for concern is driven by the government's obsession with numbers. Some 19,694 sites on nearly 1800 military installations are currently included in the Department of Defense (DoD) Installation Restoration Program (IRP). Three thousand eight hundred and seventy five of those sites are associated with facilities listed on the National Priorities List (NPL). As of September 30, 1993, the total number of DoD NPL listings was 109. U.S. DEPARTMENT OF DEFENSE, DEFENSE ENVIRONMENTAL RESTORATION PROGRAM ANNUAL REPORT TO CONGRESS FOR FISCAL YEAR 1993 (PRELIMINARY REPORT) 2 (Jan. 1994).

of CERCLA,¹⁸ complete Superfund reform is not the focus of this thesis. Instead, its primary focus is to examine three of the major issues facing the Department of Defense in deliberating reauthorization of the Superfund program and suggest specific changes to expedite the cleanup process.¹⁹

Before analyzing its problematic sections, I will briefly review the underlying context and basic framework of CERCLA, specifically the relevant legislative history, major provisions, and purposes of the program, in order to illustrate how the Act has fundamentally altered the standards used in regulating the remediation of hazardous waste. I then define the parameters of DoD's environmental restoration program and its relationship to CERCLA. I will then examine the three issues I believe are most important

¹⁸ Earl K. Madsen, et al., *Superfund Reauthorization: An Opportunity to Rectify Major Problems*, 24 ENV'T REP. (BNA) 1020 (Oct. 1, 1993).

¹⁹ The purpose of this thesis is not to undertake a comprehensive review of all CERCLA provisions at issue during the upcoming reauthorization process. While concerns such as retroactive and strict liability (predicating liability on behavior not status), establishing a fair share allocation scheme, the use of binding arbitration for allocation determinations, administrative improvements involving enhanced public participation in Superfund decision making, the use of innovative remedial technologies, establishing liability exemptions for municipal waste dumps, and implementing small waste "de minimis" and "de micromis" contributor settlements are an important part of the Superfund debate, this thesis limits its examination to those issues the author believes are the most important relative to the Department of Defense. For an examination of these other issues, see Peter B. Priestly, *The Future of Superfund*, 79 A.B.A. J. 62 (Aug. 1992).

to military practice - developing consistency in remedy selection and risk assessment, defining the appropriate state role at federal hazardous waste sites, and resolving land transfer issues under CERCLA section 120(h).²⁰

Finally, I will identify shortcomings in these three areas and suggest specific statutory changes to the Superfund program. I will conclude by arguing that these changes will facilitate expedient and propitious remedial activities within the Department of Defense and will represent a positive development in DoD's efforts to establish clear and consistent rules governing the cleanup of its hazardous waste legacy.

Despite a large investment of resources, the Superfund program has so far achieved little of its primary purpose: the permanent cleanup of major hazardous waste sites.²¹ It is doubtful this goal will ever be achieved without a major overhaul of the statute.²² Congress must find ways to

²⁰ CERCLA is often referenced according to the paragraph of the original legislation. Those numbers run from 100 to 175 and correspond to title 42 of the United States Code §§ 9601-9675. For example, section 120 corresponds to 42 U.S.C. § 9620.

²¹ The primary purpose of CERCLA is the "prompt cleanup of hazardous waste sites." *Dickerson v. EPA*, 834 F.2d 974, 978 (11th Cir. 1987) (quoting *Walls v. Waste Resource Corp.*, 761 F.2d 311, 318 (6th Cir. 1985)).

²² Reporting on the Superfund Revenue Act of 1985, the Senate Committee on Finance commented: "It is now clear that the current Superfund Program [CERCLA] will not be adequate to achieve the goals of the 1980 Act." S. REP. NO. 73, 99th

increase the speed and control the cost of cleanups,²³ better define the health and environmental risks in the development and selection of remedies, and determine the proper role the states should play in remedial action involving federal sites. Only with real change can DoD begin achieving its goal "to demonstrate prudent environmental stewardship on its lands by cleaning up and restoring them in a timely and fiscally responsible manner."²⁴ Only with real change can the military ever expect to win the battle to save the environment; affording Americans the opportunity to once again live in "a world where our [land] and waters are metaphors for purity and not threats to our very lives."²⁵

Cong., 1st Sess. 12 (1985).

²³ It has been estimated the total cost for cleanup of all environmental contamination under Superfund and its progeny will exceed \$752 billion, as follows:

Superfund:	\$151 billion
RCRA Corrective Action:	\$234 billion
Underground Storage Tanks:	\$ 67 billion
Department of Defense:	\$ 30 billion
Department of Energy:	\$240 billion
State/Private Cleanups:	\$ 30 billion

Milton Russell et al., *Hazardous Waste Remediation: The Task Ahead*, HAZARDOUS WASTE REMEDIATION PROJECT, WASTE MANAGEMENT RESEARCH AND EDUCATION INSTITUTE, UNIVERSITY OF TENNESSEE (Dec. 1991), cited in HAZARDOUS WASTE CLEANUP PROJECT, STICKER SHOCK, RECOGNIZING THE FULL COST OF SUPERFUND CLEANUPS iii (June 1993).

²⁴ U.S. DEPARTMENT OF DEFENSE, DEFENSE ENVIRONMENTAL RESTORATION PROGRAM ANNUAL REPORT TO CONGRESS FOR FISCAL YEAR 1992, at iii (Apr. 1993).

²⁵ George Bush, *George Bush on the Environment*, 18 ENVTL. L. REP. (ENVTL. L. INST.) 10293, 10294 (Aug. 1988).

III. GENERAL OVERVIEW OF THE SUPERFUND PROGRAM

*State environmental authorities discovered this chemical wasteland in 1977 after combustible chemicals caused a dramatic explosion and towering flames to rip through a waste disposal site. After the fire, state investigators discovered large trenches and pits filled with free-flowing, multi-colored, pungent liquid wastes; they also excavated approximately 10,000 barrels and containers in varying states of decay containing hazardous chemical wastes.*²⁶

A. Historical Perspective

Social and economic problems brought on by the industrial activities of the United States during the first half of the twentieth century were ultimately addressed by Congress in some form of legislation relating to the regulation of securities,²⁷ antitrust,²⁸ labor,²⁹

²⁶ *Violet v. Picillo*, 648 F. Supp. 1283, 1286 (D.R.I. 1986) cited in Daniel R. Hansen, *CERCLA Cost Allocation and Nonparties' Responsibility: Who Bears the Orphan Shares?*, 11 J. ENVTL. L. 37 (1992). This description is representative of the many hazardous waste sites in the United States discovered during the 1970s.

²⁷ See, e.g., Securities Exchange Act, ch. 404, title I, §§ 9, 18, 48 Stat. 889, 897 (1934) (current version at 15 U.S.C. §§ 78i(e), 78r(a) (1988)) (regulation of securities exchanges and over-the-counter markets operating in

transportation,³⁰ and the like. However, environmental concerns related to this growth did not begin to attract the public's attention until the late 1960s.

Soon thereafter came an unprecedented expansion in the amount of federal legislation.³¹ Over the next ten years, Congress enacted a number of laws designed to protect the environment.³² This inserted the federal government into nearly every ecological niche: national policy,³³ clean interstate and foreign commerce).

²⁸ See, e.g., Sherman Antitrust Act, ch. 647, § 1, 26 Stat. 209 (1890) (current version at 15 U.S.C. § 1 (1988)); Clayton Act, ch. 323, § 7, 38 Stat. 730, 731-32 (1914) (current version at 15 U.S.C. § 18 (1988)) (prevention of monopolies and conduct restraining trade).

²⁹ See, e.g., Fair Labor Standards Act, ch. 676, § 1, 52 Stat. 1060 (1938) (current version at 29 U.S.C. § 201 (1988)) (setting minimum wages, maximum hours for child labor and maximum hours that may be worked without overtime payment).

³⁰ See, e.g., Federal-Aid Road Act of 1916, ch. 241, 39 Stat. 355 (construction of rural post roads); Transportation Act of 1920, ch. 91, 41 Stat. 988 (termination of federal control of railroads and other systems of transportation).

³¹ See Arnold W. Reitze, Jr., *Environmental Policy - It is Time for a New Beginning*, 14 COLUM. J. ENVTL. L. 111 (1989) (discussing the "[m]yriad environmental statutes and regulations" implemented over the past [20] years). *Id.*

³² Peter M. Detwiler, *Environmental Analysis After A Decade: "If Prophecy Is Impossible, Then Go For Understanding"*, 41 PUB. ADMIN. REV. 93 (Jan.-Feb. 1981).

³³ National Environmental Policy Act of 1969, Pub. L. No. 91-181, 83 Stat. 838, as last amended by Pub. L. No. 102-389, 106 Stat. 1602 (1992) (codified as amended at 42 U.S.C.A. §§ 4321-4370(d) (West 1977 & Supp. 1993)). NEPA

air,³⁴ clean water,³⁵ occupational safety,³⁶ pesticides,³⁷

promotes consideration of environmental concerns by federal agencies by requiring every federal agency to prepare a detailed analysis of the environmental consequences of major proposals, circulate the analysis to other federal agencies for their comments, and consider the analysis along with the comments in their decision making. NEPA does not stipulate any pollution control measures or even establish direct regulation of any private industry. However, it does require federal agencies to complete environmental impact statements when they are about to undertake any major federal action significantly affecting the human environment. See NEIL ORLOFF & GEORGE BROOKS, *THE NATIONAL ENVIRONMENTAL POLICY ACT CASES & MATERIALS* 17 (1980).

³⁴ Clean Air Act, Pub. L. No. 84-159, 69 Stat. 322 (1955), as last amended by Pub. L. No. 101-549, 104 Stat. 2468 (1990) (codified as amended at 42 U.S.C. §§ 7401-7671q (1988 & Supp. III 1991)). The goal of the Clean Air Act is to prevent or control discharge into the air of substances which may harm public health or natural resources. Its aim is to control air quality by regulating discharge into the air of substances which would change the ambient quality of the air. The Act regulates emissions from fuels and motor vehicles, deals with ozone depletion, and regulates hazardous air pollutants and air emissions that lead to acid rain. Captain Gerald P. Kohns et al., *A Primer on Contractor Environmental Remediation and Compliance Costs*, ARMY LAW., Nov. 1993, at 24.

³⁵ Federal Water Pollution Control Act, Pub. L. No. 92-500, § 2, 86 Stat. 816 (1972), as last amended by Pub. L. No. 101-596, 104 Stat. 3000 (1990) (codified as amended at 33 U.S.C. §§ 1251-1387 (1988 & Supp. IV 1992)). In 1972, Congress put the basic framework for federal water pollution control regulation in place by enacting the Federal Water Pollution Control Act (FWPCA). In 1977, Congress renamed the FWPCA the Clean Water Act (CWA) and changed the regulatory focus to rigorous control of toxic water pollutants by requiring EPA to promulgate regulations establishing categories of pollution sources and setting effluent limitations for those categories. See, e.g., *Chemical Manufacturers Ass'n. v. Natural Resources Defense Council*, 470 U.S. 116 (1985). Under section 504 of the CWA, EPA can enjoin any person from discharging any pollutants "presenting an imminent and substantial endangerment to health or welfare." 33 U.S.C. § 1364 (1988).

endangered species,³⁸ drinking water,³⁹ toxics,⁴⁰ and newly generated waste,⁴¹ among them. In fact, passage of the

³⁶ Occupational Safety and Health Act, Pub. L. No. 91-596, 84 Stat. 1590 (1970), *as last amended by* Pub. L. No. 102-55, 106 Stat. 3924 (1992) (codified as amended at 29 U.S.C. §§ 651-671a (1988 & Supp. IV 1992)) (addressing environmental conditions within the workplace).

³⁷ Federal Insecticide, Fungicide, and Rodenticide Act, Pub. L. No. 92-516, 86 Stat. 975 (1972), *as last amended by* Pub. L. No. 102-237, 105 Stat. 1894, 1895 (1991) (codified as amended at 7 U.S.C. §§ 136-136y (1988 & Supp. IV 1993)). FIFRA has undergone numerous amendments since its passage in 1947. For a time beginning in 1972, it was subsumed within an umbrella statute entitled the Federal Environmental Pesticide Control Act (FEPCA); but by later amendment FIFRA was restored as the statute's name. FIFRA requires any person distributing, selling, offering, or receiving any pesticide to register the poison with the Environmental Protection Agency.

³⁸ Endangered Species Act of 1973, Pub. L. No. 93-205, 87 Stat. 884, *as last amended by* Pub. L. No. 100-478, 102 Stat. 2315 (1988) (codified as amended at 16 U.S.C. §§ 1531-1544 (1988)).

³⁹ Safe Drinking Water Act, Pub. L. No. 93-523, 88 Stat. 1660 (1974), *as last amended by* Pub. L. No. 99-399, 100 Stat. 666 (1986) (codified as amended at 42 U.S.C. §§ 300f-300j (1988)) (fixes water quality levels for drinking water suppliers and provides protection for underground drinking water supply sources).

⁴⁰ Toxic Substances Control Act, Pub. L. No. 94-469, 90 Stat. 2003 (1976), *as last amended by* Pub. L. No. 102-550, 106 Stat. 3924 (1992) (codified as amended at 15 U.S.C. §§ 2601-2692 (1988 & Supp. IV 1992)). The Act authorizes EPA to compile a list of substances and collect information on the effect of their use on health and the environment. EPA insures testing to identify hazards to human health and the environment associated with chemical substances before they are permitted to be manufactured or sold.

⁴¹ Resource Conservation and Recovery Act, Pub. L. No. 94-550, 90 Stat. 2795 (1976), *as amended by* Hazardous and Solid Waste Amendments of 1984, Pub. L. No. 98-616, 98 Stat. 3221, *as last amended by* Pub. L. No. 102-386, 106 Stat. 1505 (1992) (codified as amended at 42 U.S.C.A. §§ 6901-6992k (West 1983 & Supp. 1993)). The Resource Conservation and

National Environmental Policy Act (NEPA) in 1969 marked the beginning of what was later to be dubbed the "decade of environmental legislation."⁴² These statutes, however, focused narrowly on their individual subject areas. They did not address the serious problems created by abandoned and inactive hazardous waste disposal sites.⁴³

In the late 1970s, news stories such as Love Canal⁴⁴

Recovery Act (RCRA) is a regulatory statute designed to provide "cradle-to-grave" control of hazardous waste by imposing management requirements on generators and transporters of hazardous waste and upon owners and operators of treatment, storage, and disposal facilities. RCRA applies mainly to active facilities.

⁴² Lynton Caldwell, *NEPA Revisited: A Call for a Constitutional Amendment*, 6 ENVTL. F. 17, 19-20 (Nov.-Dec. 1989).

⁴³ See James E. Enoch, Jr., Note, *Environmental Liability for Lenders After United States v. Fleet Factors Corp.: Deep Pockets or Deep Problems*, 48 WASH. & LEE L. REV. 659, 659-60 (1991) (RCRA "forward looking" legislation concentrating on controlling present and future hazardous waste production but cannot handle plethora of past hazardous waste problems because many responsible parties abandoned sites). In addition, Congress found fault with RCRA because it gave no investigatory or enforcement power to EPA, provided inadequate financial assistance to state hazardous waste programs, and most importantly, because it was "prospective and applie[d] to past sites only to the extent that they [were] posing an imminent hazard." HOUSE COMM. ON INTERSTATE AND FOREIGN COMMERCE, HAZARDOUS WASTE CONTAINMENT ACT OF 1980, H.R. REP. NO. 4016, 96th Cong., 2d Sess. pt. 1, at 22, reprinted in 1980 U.S.C.C.A.N. at 6125.

⁴⁴ The canal was basically an uncompleted half-mile long waterway dug around the turn of the century by William T. Love. Beginning in the 1930s, the trench had been used as an industrial dump. In 1947, the land where the trench was located was purchased by the Hooker Chemical and Plastics Corporation and until 1953 was used as a depository for tons of industrial wastes. In 1953, the site was sold

and the Valley of the Drums⁴⁵ began focusing public and congressional attention⁴⁶ on the growing problems of these active and inactive hazardous waste sites as well as hazardous waste spills.⁴⁷ While Congress quickly identified

to the Niagara Falls, New York, Board of Education. The education department constructed a neighborhood school on part of the site and sold the unneeded portion to a developer who constructed several hundred tract homes on it. In 1976, heavier-than-normal rains over a period of years finally raised the water table sufficiently to send chemicals buried on the site into basements and playgrounds. EPA's subsequent investigation identified 82 different chemicals on the Love Canal site, many of them known carcinogens and highly toxic. The records indicate some 21,000 tons--42 million pounds--of various waste had been deposited into the Love Canal from 1942 through 1953. In August 1978, President Carter declared a state of emergency and 40 families were evacuated and the school closed. Although remedial measures at the site and relocation of the families cost the state of New York in excess of \$35 million, there was no federal program to help pay the costs. See *United States v. Hooker Chems. & Plastics Corp.*, 680 F. Supp. 546 (W.D.N.Y. 1988); 126 CONG. REC. 30,931, 30,934 (1980); ADELINE G. LEVINE, *LOVE CANAL: SCIENCE, POLITICS, AND PEOPLE* (1982); U.S. OFFICE OF TECHNOLOGY ASSESSMENT, *HABITABILITY OF THE LOVE CANAL AREA* (June 1983).

⁴⁵ The Valley of the Drums, a 7 acre site located near Louisville, Kentucky, contained more than 17,000 barrels of hazardous waste stored illegally in a waste transporter's backyard. By 1980, the drums were deteriorating and bursting. Nearly 30 metals and 200 organic chemicals were eventually identified. However, the State lacked the resources to contain and store the hazardous wastes.

⁴⁶ In fact, the New York Times report on the incident was incorporated into the record of the CERCLA debates. SENATE COMM. ON ENV'T. & PUB. WORKS, ENVTL. EMERGENCY RESPONSE ACT, S. REP. NO. 848, 96th Cong., 2d Sess. 7, 8 (1980) (*reprinting Love Canal, U.S.A.*, N.Y. TIMES, Jan. 21, 1979, § 6 (Magazine), at 23). See also 125 CONG. REC. 13,248-50 (1979) (statement of Sen. Bumpers).

⁴⁷ CERCLA was, in part, a reaction to public pressure resulting from the negative publicity given to hazardous waste sites, including Love Canal. The legislative history of CERCLA expressly mentions the incidents at Love Canal.

problems⁴⁸ created by past disposal practices and recognized existing law was inadequate to address the situation,⁴⁹ it proved difficult for them to agree upon an appropriate legislative response.

However, with the end of the legislative term fast approaching, members worked quickly to enact CERCLA⁵⁰ and,

See HOUSE COMM. ON INTERSTATE AND FOREIGN COMMERCE, HAZARDOUS WASTE CONTAINMENT ACT OF 1980, H.R. REP. NO. 1016, 96th Cong., 2d Sess. pt. 1, at 19-20, reprinted in 1980 U.S.C.C.A.N. at 6121-23. For a different perspective, Reps. Stockman and Loeffler voted against passage of CERCLA believing that "a Love Canal, Valley of the Drums, [or Chemical Control Corporation] incident does not establish a systemic, generalized, and perilous pattern. Indeed, the available empirical evidence suggests . . . [these] situations are aberrant rather than pandemic." H.R. REP. NO. 1016, *id.* at 70, reprinted in 1980 U.S.C.C.A.N. at 6145.

⁴⁸ Love Canal may have even provided the paradigm for the hazardous waste cleanup and risk problem. FREDERICK R. ANDERSON ET AL., ENVIRONMENTAL PROTECTION: LAW AND POLICY 532-33 (1984).

⁴⁹ Under RCRA, EPA could bring suit to force the clean-up of disposal sites only if it could meet the high evidentiary standard of showing an imminent hazard to health or the environment. See Robert C. Eckhardt, *The Unfinished Business of Hazardous Waste Control*, 33 BAYLOR L. REV. 253, 256 (1981).

⁵⁰ Then Representative Gore, actively involved in drafting the bill, called CERCLA "one of the most important pieces of legislation introduced in this Congress." 126 CONG. REC. 26,781 (1980) (statement of Rep. Gore). The speed with which the bill was drafted, however, gave rise to several problems. Courts and litigants alike have complained the bill was hastily assembled, the legislative history patchwork, and the language vague. Because of the ambiguity and contradictions within the statute, critics have dubbed CERCLA the "full employment act for lawyers." Rachel Giesber, Note, *Foolish Consistency? Compliance with the National Contingency Plan Under CERCLA § 107*, 70 TEX. L. REV. 1297, 1299 (1992) (quoting David E. Jones & Kyle E.

in the waning days of the ninety-sixth Congress and the Carter presidency, it was signed into law.⁵¹ CERCLA was the product of a long and circuitous process of legislative compromise and, as a result, "is far from being a model of statutory or syntactic clarity."⁵² In fact, the bill ultimately enacted was a last-minute compromise⁵³ measure

McSillarow, . . . *But Were Afraid To Ask: Superfund Case Law, 1981-1989*, 19 ENVTL. L. REP. (ENVTL. L. INST.) 10,430 (Oct. 1989)).

⁵¹ Congress enacted CERCLA just one month after Ronald Reagan defeated Jimmy Carter in the 1980 presidential election. Noting Congress passed the legislation during a "lame duck" administration, former EPA Administrator Douglas Costle termed the enactment of a major piece of legislation such as CERCLA "an extraordinary action." 16 ENV'T. REP. (BNA) 7 (May 3, 1985).

⁵² *City of New York v. Exxon Corp.*, 633 F. Supp. 609, 613-4 (S.D.N.Y. 1986). CERCLA, as finally enacted, represented a compromise between competing bills in the House and Senate. In the Senate, there were "extensive eleventh-hour alterations, including the deletion of House provisions dealing with joint and several liability." *Id.* at 613 n.2. House Bill 7020 was largely conformed to Senate Bill 1640, which ultimately was the version enacted. Because legislative judgments differed substantially from the original bills to the final Act, the Committee Reports regarding CERCLA "are dubious sources for interpretation of the statute." *Id.* at 613-14 n.2.

⁵³ See *United States v. Mottolo*, 605 F. Supp. 898, 902, 905 (D. N.H. 1985) (Congress passed CERCLA hastily after very limited debate and under a suspension of rules).

Representative Biaggi introduced H.R. 85 on January 15, 1979. 125 CONG. REC. 130 (1979). The three House committees considering the bill substituted a new version of the bill and submitted it to the full House of Representatives with a favorable report. See H.R. REP. NO. 172, 96th Cong., 2d Sess. pts. 1-3 (1979-80). Because of resistance from the oil and chemical industries, the full House considered and passed a replacement bill advanced by Representative Breaux as an amendment to H.R. 85. 126 CONG. REC. 26,391-92 (1980). The bill, as passed, established two funds financed from

forced through Congress virtually without discussion.⁵⁴

taxes on petroleum and chemical feedstocks. One fund was to provide compensation for oil spills and the other for hazardous chemical spills in navigable waters; the bill did not encompass hazardous substance releases on land. The bill permitted governments and individuals to receive damages for cleanup costs and certain economic losses, and imposed strict liability on owners and operators of vessels and other facilities.

Representative Florio introduced H.R. 7020 on April 2, 1980. 126 CONG. REC. 26,799 (1980). The bill was reported out of Committee, see H.R. REP. NO. 1016, 96th Cong., 2d Sess. pts. 1-2 (1980), and enacted by the House. 126 CONG. REC. 26,799 (1980). The bill created a fund financed from a tax on oil and chemicals and from general revenues. The fund was to support government response to releases of hazardous substances, including oil, from inactive hazardous waste sites; it did not cover spills in navigable waters, nor did it provide for compensation for economic losses.

The most ambitious of the bills, S. 1480, was introduced by Senators Culver, Muskie, Stafford, Chafee, Randolph, and Moynihan on July 11, 1979. 125 CONG. REC. 17,988 (1979). It was favorably reported. See S. REP. NO. 848, 96th Cong., 2d Sess. (1980). As reported, the bill provided for a \$4 billion fund from general revenues and fees on petroleum and chemicals, and for strict liability for a broad range of persons responsible for releases of hazardous chemicals (not including oil). The liability and compensation provisions covered cleanup costs and a variety of private damages, including medical expenses.

As all three bills reached the Senate, S. 1480 was attacked as too comprehensive and H.R. 85 and H.R. 7020 as too weak. Eventually the Senate passed a substitute bill as an amendment to H.R. 7020. The new H.R. 7020 was enacted by both Houses, and signed into law on December 11, 1980. See generally LEGISLATIVE HISTORY, *supra* note 4; Grad, *supra* note 4.

⁵⁴ There are no committee or conference reports addressing the version of the legislation that became law. "Although Congress had worked on 'Superfund' toxic and hazardous waste cleanup bills . . . for over three years, the actual bill which became law had virtually no legislative history at all." Frank P. Grad, *A Legislative History of the Comprehensive Environmental Response, Compensation and Liability ("Superfund") Act of 1980*, 8 COLUM. J. ENVTL. L. 1 (1982).

CERCLA was meant to give the federal government⁵⁵ the resources and authority to "respond to hazardous substance releases and to provide full protection of the public health and the environment."⁵⁶ However, with a sometimes ambiguous,⁵⁷ and often contradictory, legislative history, this has not been the case as answers to key issues remain unresolved.⁵⁸

⁵⁵ Congress delegated the responsibility for cleaning up these waste sites to the newly formed EPA. See *B.F. Goodrich Co. v. Murtha*, 958 F.2d 1192, 1197 (2d Cir. 1992) (CERCLA designed to enhance authority of EPA to respond to threats to environment and health).

⁵⁶ 126 CONG. REC. 31,951 (1980) (statement of Rep. Florio). As chairman of the Transportation and Commerce Subcommittee, a member of the Interior and Insular Affairs Committee, and a member of the Interstate and Foreign Commerce Committee during the 96th Congress, Florio was sponsor of the House version of CERCLA. See HOUSE COMM. ON INTERSTATE AND FOREIGN COMMERCE, HAZARDOUS WASTE CONTAINMENT ACT OF 1980, H.R. REP. NO. 1016, 96th Cong., 2d Sess. pt. 1, at 22, reprinted in 1980 U.S.C.C.A.N. at 6125. See also *Administration Overhauls Decontamination Process*, DAILY PROG., Feb. 4, 1994, at A2 (Clinton administration says one fourth of all Americans live within a few miles of toxic waste dumps).

⁵⁷ See, e.g., *United States v. Northeastern Pharmaceutical & Chem. Co.*, 579 F. Supp. 823 (W.D. Mo. 1984) (citations omitted), modified, 810 F.2d 726 (8th Cir. 1986) ("CERCLA is . . . a hastily drawn piece of compromise legislation, marred by vague terminology and deleted provisions [N]umerous important features were deleted during the closing hours of the Congressional session. The courts are once again placed in the undesirable and onerous position of construing inadequately drawn legislation"). 579 F. Supp. at 835 n.15.

⁵⁸ Tom Bayko & Paul A. Shore, *Stormy Weather on Superfund Front Forecast as "Hurricane SARA" Hits*, NAT'L L.J., Feb. 16, 1987, at 24 ("[a]lthough there was widespread agreement on the urgent need for funds and authority to clean up existing hazardous waste sites, Congress was badly divided on how to accomplish this task"). *Id.*

B. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980

Reduced to its most basic elements, CERCLA essentially established a \$1.6 billion trust fund and provided the federal government with the authority to use fund money to implement necessary activities arising from the cleanup of hazardous waste sites.⁵⁹ Had Congress stopped there and simply created a cleanup fund providing EPA with the authority to perform remedial work, CERCLA would have been a simple public works project. The statute, however, went much further.

CERCLA, unlike other environmental laws affecting chemicals, does not regulate substances. Instead, the legislation empowers the executive branch,⁶⁰ in consultation with the states, to determine and implement appropriate responses⁶¹ to the public health threat posed by the

⁵⁹ 42 U.S.C. § 9611(a) (1988).

⁶⁰ CERCLA authorizes the President to take any action he "deems necessary to protect the public health or welfare of the environment" in response to the actual or threatened release of "hazardous substance[s]," "pollutants," or "contaminant[s]." 42 U.S.C. § 9604(a)(1) (1988). Virtually all the powers given to the President under the Act were delegated to various executive agencies by President Reagan. Exec. Order No. 12,316, 3 C.F.R. 168 (1981), reprinted in 1981 U.S.C.C.A.N. B70.

⁶¹ The act defines two types of responses to hazardous releases or threatened releases: removal actions and remedial actions. 42 U.S.C. § 9601(25) (1988). Removal

presence of hazardous substances (i.e. chemicals and gases)⁶² in the environment.⁶³ CERCLA provides a system for identifying and cleaning up hazardous chemical and other releases⁶⁴ into any part of the environment⁶⁵ and established

actions entail the cleanup or removal of hazardous substances when a release or threatened release occurs, in order to prevent, minimize, or mitigate damage to the public health, welfare, or the environment. 42 U.S.C. § 9601(23) (1988). Remedial actions are those long-term actions leading to a permanent remedy instead of or in addition to removal actions. 42 U.S.C. § 9601(24) (1988). Remedial actions are designed to prevent or minimize the release of hazardous substances so they do not mitigate or endanger present or future public health, welfare or the environment. While EPA takes removal actions at both NPL and non-NPL sites, it limits its remedial actions to NPL sites. 42 U.S.C. § 9601(23) (1988). EPA may not spend more than two million dollars or twelve months on a removal action. 42 U.S.C. § 9604(c)(1) (1988).

⁶² "Hazardous substance" is any substance EPA has designated for special consideration under the Clean Air Act, the Clean Water Act, the Toxic Substances Control Act, or any hazardous waste under the Resource Conservation and Recovery Act. EPA may also designate additional substances as hazardous which may present a substantial danger to health and environment. 42 U.S.C. § 9601(14) (1988). EPA maintains a list of all such hazardous substances at 40 C.F.R. § 302.4 (1993). As of July 1, 1993, there were in excess of 1100 "hazardous substances" on the list. See also 3550 Stevens Creek Ass'n v. Barclays Bank, 915 F.2d 1355, 1361 (9th Cir. 1990) (asbestos is a hazardous substance).

⁶³ "Environment" includes all navigable and other surface waters, ground waters, drinking water supplies, land surface or subsurface strata, and ambient air within U.S. jurisdiction. 42 U.S.C. § 9601(8) (1988). The only limitation is that "indoor" air is not included. 40 C.F.R. § 50.1(e) (1992).

⁶⁴ A "release" is defined extremely broadly so as to include any way a substance can enter the environment, such as "spilling, leaking, pumping, pouring, emitting, emptying, discharging, escaping, leaching, dumping, or disposing." 42 U.S.C. § 9601(22) (1988).

the Superfund to finance governmental response activities.⁶⁶ CERCLA "mark[ed] the first attempt by any nation to provide a comprehensive program to respond to chemical accidents and emergencies and to clean up sites contaminated by hazardous chemicals."⁶⁷

CERCLA applies principally to situations in which significant environmental damage has already occurred.⁶⁸ It

⁶⁵ See generally Frederick R. Anderson, *Natural Resource Damages, Superfund, and the Courts*, 16 B.C. ENVTL. AFF. L. REV. 405, 409-11 (1989) (discussing the implementation of CERCLA's Superfund provisions).

⁶⁶ See Stephen M. Feldman, Note, *CERCLA Liability, Where It Is And Where It Should Not Be Going: The Possibility of Liability Release For Environmentally Beneficial Land Transfers*, 23 ENVTL. L. REP. (ENVTL. L. INST.) 294, 294 (1993). The need for the fund part of a Superfund law may not be obvious. After all, if state common law is inadequate to fix liability on the industries generating, transporting, and disposing of hazardous wastes, a federal law imposing liability on a somewhat broader range of PRPs would seem to be all that is necessary. The major reasons for a fund component of Superfund are that responsible parties can not always be identified - as in the practice of "midnight dumping" -and that, even if located, responsible parties may be unable to pay for the amount of the cleanup costs. The reason the fund must be "super" is simply a function of cost. Purging a site of hazardous waste contaminants can be a multi-million dollar undertaking. See ZYGMUNT J.B. PLATER ET AL., *ENVIRONMENTAL LAW AND POLICY: NATURE, LAW, AND SOCIETY* 253 (1992).

⁶⁷ *Administration of Superfund by the Environmental Protection Agency: Hearings Before the Subcomm. on Oversight of the House Comm. on Ways and Means*, 103d Cong., 1st Sess. 32, 36 (1993) (statement of Robert M. Sussman, Deputy Administrator, EPA).

⁶⁸ By its literal terms, § 106 authorizes EPA to act against an "actual or threatened release of a hazardous substance," 42 U.S.C. § 9606(a) (1988) (emphasis added); but, to date, there appear to be few, if any, invocations of

authorizes EPA to identify abandoned hazardous waste sites across the country and rank the sites by degree of hazard on a National Priorities List (NPL).⁶⁹ Operating under a National Contingency Plan (NCP), which establishes procedures and standards for response actions,⁷⁰ the NPL

§ 106 that are wholly prospective in character. Instead, § 106 is being used to keep past releases from getting worse. PLATER ET AL., *supra* note 66, at 882.

⁶⁹ The National Priorities List is found at 40 C.F.R. § 300, App. B (1993). The first version of the list came out in 1981 and had 115 entries. *Who's Who on the List*, 7 E.P.A. J., Nov.-Dec. 1981, at 16-17. By the end of 1982, the NPL named 418 sites as requiring federal attention. *Seeking Ways to Speed the Cleanup*, CHEM. WEEK, Jan. 18, 1984, at 32. As of January 18, 1994, there were 1192 facilities on the NPL (1069 private and an additional 123 federal), although cleanup operations have begun at only 265. See 24 ENV'T REP. (BNA) 1649 (Jan. 21, 1994). EPA is required to update the NPL at least once a year to ensure that the top priority sites are included on the list. 42 U.S.C. § 9605(a)(8)(B) (1988). EPA may delete a final NPL site if it determines no further response action is required to protect human health or the environment. 40 C.F.R. 300.425(e) (1993). As of January 1994, 56 sites have been deleted from the NPL over the years - all from the general superfund section and none from the federal facilities section. U.S. ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF EMERGENCY & REMEDIAL RESPONSE, NATIONAL PRIORITIES LIST, PROPOSED RULE (9320.7-051) 5 (1994).

⁷⁰ 42 U.S.C. § 9605(a) (1988). The National Contingency Plan already existed as part of the Federal Water Pollution Control Act (now called the Clean Water Act), 33 U.S.C. §§ 1251-1387 (1988 & Supp. IV 1992). The Plan's official name is the National Oil and Hazardous Substances Pollution Contingency Plan, and is described at 40 C.F.R. pt. 300 (1993). Before CERCLA, the NCP served as a blueprint for dealing with environmental disasters such as oil spills. Today, the NCP is, in essence, a compendium of the standards and procedures for cleanups that will ensure an acceptable result. It sets standards governing the cleanup process to ensure removal and remedial actions are adequate to protect both health and environment. See Joseph Freedman, *Proposed Amendments to the National Contingency Plan: Explanation and Analysis*, 19 ENVTL. L. REP. (ENVTL. L. INST.) 10,105, 10,105-7 (Mar. 1989).

lists facilities⁷¹ that are priorities for remedial action; essentially sites presenting the greatest danger⁷² according to a Hazard Ranking System (HRS), a complex and bureaucratic regulatory scheme purportedly used to evaluate the relative risks presented at a site.⁷³

⁷¹ "Facility" is broadly defined as "(A) any building, structure, installation, equipment, pipe or pipeline . . . , well, pit, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or (B) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located." 42 U.S.C. § 9601(9) (1988).

⁷² 42 U.S.C. § 9605 (1988). Remedial actions are confined to sites appearing on the National Priorities List by virtue of a high HRS score. 40 C.F.R. § 300.68(a)(1) (1993).

⁷³ The HRS, located at 40 C.F.R. pt. 300, app. A. (1993), was originally designed to address three broad categories of hazards: hazards through migration (groundwater, surface water, and air); hazards through fire and explosion; and hazards through direct contact. Applying these three factors, the HRS assigns each site a score ranging from 1 - 100. In order to manage the initial number of sites placed on the NPL, EPA assigned an arbitrary score of 28.50 as the threshold for NPL listing. This number was selected because, in the original CERCLA debates, Congress mandated EPA establish an NPL of 400 sites. The cutoff of 28.50 was chosen because 400 sites out of the original universe scored above 28.50. In addition to surpassing an HRS score of 28.50, in order to address the political sensitivities associated with the existence of abandoned waste sites, each state was also permitted to place one site on the NPL regardless of its HRS score. Of the 57 states and territories, 39 have designated top-priority status sites. NATIONAL PRIORITIES LIST, PROPOSED RULE, *supra* note 69, at 2. The final method by which a site could be placed on the NPL is where the Agency for Toxic Substances and Disease Registry (ATSDR) issues a health advisory recommending removing people from the site and EPA determines the site poses a significant threat to public health finding it cost effective to use remedial authority rather than emergency removal authority. The current HRS, as finalized in 1990 (55 Fed. Reg 51,532 (1990)), is organized into four major "migration pathways" -groundwater, surface water, soil, and

Although NPL sites are the most visible priority, EPA⁷⁴ is actually charged⁷⁵ with assessing⁷⁶ all potential

air - with a separate section for the special problems of radioactive wastes. Each migration pathway is analyzed according to four factors: 1) the sources of hazardous substances into the pathway; (2) the likelihood of release of the hazardous substances through the pathway; (3) the characteristics of the hazardous substances involved (toxicity, mobility, persistence, quantity); and (4) targets (i.e. affected individuals, populations, resources and sensitive environments). The original arbitrary score of 28.50 to get on the NPL has been maintained through manipulation of the weighting factors assigned to the different criteria. Note, *Determining What Degree of Deference is Afforded EPA Decisions to Place Hazardous Waste Sites on the National Priorities List*, 66 TEMP. L. REV. 1123 (1992). The highest current HRS score is 84.91 at Big River Mine Tailings, Desloge, Missouri. Search of LEXIS, Envirn library, nplist file (Jan. 27, 1994) (search for records containing "hrs-score aft 80"). The highest of the DoD installations are Pearl Harbor Naval Complex, Hawaii at 70.82 and Air Force Plant #44 in Tucson, Arizona at 74.00. U.S. DEPARTMENT OF DEFENSE, DEFENSE ENVIRONMENTAL RESTORATION PROGRAM ANNUAL REPORT TO CONGRESS FOR FISCAL YEAR 1993 (PRELIMINARY DRAFT) A-12, A-128 (Dec. 1993).

⁷⁴ EPA was created by presidential order, Reorg. Plan No. 3 of 1970, 3 C.F.R. 199 (1971), reprinted in 5 U.S.C. app. at 1343 (1988), and in 84 Stat. 6322 (1970), borrowing authority and programs from the Departments of Agriculture and Health, Education and Welfare, the Federal Radiation Council, and the Atomic Energy Commission. See 40 C.F.R. § 1.49 (1984) (EPA regulations on organization and general information). See also COUNCIL ON ENVIRONMENTAL QUALITY, FIRST ANNUAL REPORT 24-26 (1970) (describing EPA formation). EPA's statutory duties under CERCLA begin under § 105 which require EPA to "establish procedures and standards for responding to releases of hazardous substances, pollutants, and contaminants." 42 U.S.C. § 9605(a)(1) (1988)..

⁷⁵ See 42 U.S.C. § 9605 (1988); Exec. Order No. 12,580, 3 C.F.R. 193 (1987), reprinted in 42 U.S.C. § 9615 (1988) (delegating responsibility for revision of the NCP and other duties under § 9605 to the EPA).

⁷⁶ EPA typically performs a preliminary assessment to determine general priorities among sites. This information is then retained in the Comprehensive Environmental Response, Compensation and Liability Information System

hazardous waste sites for remedial action and cleaning up those sites posing an "imminent and substantial danger to the public health."⁷⁷ EPA may accomplish this task in one of two ways. EPA may choose to clean up the site itself, using Superfund money⁷⁸ to finance such remedial actions.⁷⁹

(CERCLIS). The CERCLIS inventory, as of January 27, 1994, contained 38,848 sites (of which 23,573 require no further remedial action, 1192 are on the NPL and 14,083 are in various stages of the PA/SI process). Search of LEXIS, Envirn library, CERCLS file (Jan. 27, 1994) (search for records containing "publication(CERCLIS)"). EPA has estimated that between 130,000 and 425,000 sites may eventually have to be evaluated for possible cleanup. U.S. GENERAL ACCOUNTING OFFICE, SUPERFUND: EXTENT OF NATION'S POTENTIAL HAZARDOUS WASTE PROBLEM STILL UNKNOWN 3 (1987). CERCLIS, originally known as the Emergency and Remedial Response Information System (ERRIS), is an information tracking system for potentially hazardous sites. While there is no formal publication of this tracking system, one may gain access by calling the CERCLIS hotline at 1-800-424-9346.

⁷⁷ 42 U.S.C. § 9606(a) (1988). NPL sites receive a remedial investigation and feasibility study (RI/FS) to define contamination and environmental problems and to evaluate cleanup alternatives. The public is given an opportunity to comment on the preferred cleanup alternative. EPA then issues a record of decision (ROD) which says what remedy the government has chosen and the reasons for doing so. A ROD could only deal with part of a site's cleanup and several RODs may ultimately be necessary for a single site. If responsible parties agree to clean the site, they sign a negotiated consent decree with the government stipulating the exact details of how the responsible parties will proceed. If the cleanup uses Superfund money, the State must agree to pay 10 percent of the cost. The site then receives a remedial design (RD) study to determine how the chosen remedy will be engineered. The process ends with a remedial action (RA) plan, the actual implementation of the selected remedy. When a cleanup is considered complete, the site will be delisted by the EPA from the NPL. See U.S. OFFICE OF TECHNOLOGY ASSESSMENT, ARE WE CLEANING UP? 10 SUPERFUND CASE STUDIES (June 1988).

⁷⁸ The statute initially established a \$1.6 billion Hazardous Substance Response Trust Fund, commonly referred to as the "Superfund," used to finance government response

In this circumstance, EPA would subsequently bring civil actions against potentially responsible parties⁸⁰ to recover

activities, to pay certain claims arising from the response activities of private parties, and to compensate federal or state governmental entities for damage caused to natural resources. Money for the Superfund was generated by a special excise tax on petroleum products and chemical feedstocks. Superfund revenues were to be collected over a five-year period ending in 1985, with \$1.38 billion collected from taxes on the manufacture of petroleum products and certain inorganic chemicals and \$220 million from general federal revenues. 42 U.S.C. § 9631(b) (1988). In addition to the original commitment of \$1.6 billion, Congress allocated not more than \$8.5 billion for the five year period beginning October 17, 1986 and an additional \$5.1 billion for a three year period commencing October 1, 1991. 42 U.S.C. § 9611(a) (Supp. III 1991).

⁷⁹ Remedial actions are defined as those actions consistent with a permanent remedy taken instead of or in addition to removal actions in the event of a release or threatened release into the environment. 42 U.S.C. § 9601(24) (1988). Remedial actions include site-specific actions such as storage, confinement, neutralization, cleanup, recycling or reuse, repair, or replacement of containers, incineration, and relocation of residents. *Id.* See also *State of Ohio v. United States Dep't of the Interior*, 880 F.2d 432, 439 (D.C. Cir. 1989).

⁸⁰ Under CERCLA, PRPs fall into one or more of the following categories:

- a. current owners or operators of the site;
- b. past owners or operators at the time of disposal;
- c. generators (persons who "arrange for disposal" of hazardous substances that they possess); and
- d. transporters of hazardous substances.

Captain Gerald P. Kohns et al, *A Primer on Contractor Environmental Remediation and Compliance Costs*, ARMY LAW., Nov. 1993, at 25. In otherwords, a potentially responsible party is simply a person whom EPA or a state has targeted as potentially being liable for cleanup of a site. Courts have construed the term "person" expansively and, as a result, have imposed Superfund liability upon persons Congress probably never intended to pay for site cleanup. See generally *United States v. New Castle County*, 727 F. Supp. 854 (D. Del. 1989) (noting that the courts' liberal interpretation of CERCLA has led to potential imposition of

the cleanup costs,⁸¹ thereby replenishing the fund.⁸² Alternatively, EPA can compel those parties responsible⁸³ for the site to undertake remedial activities on their own.⁸⁴

In the early days of CERCLA, the majority of cleanup work was funded out of the Superfund, with potentially responsible parties paying only 30 percent of the remedial actions begun between Fiscal Years 1980 and 1986.⁸⁵ In recent years, however, that proportion has changed significantly with PRPs funding slightly over 60 percent of the remedial actions that began in FY 1991 and over 80

PRP liability upon a wide array of "persons" - including plant supervisors, shareholders/officers of property, and corporation founders).

⁸¹ Cleanup actions financed by the Trust Fund are commonly referred to as "Fund-financed" cleanups. *Administration of Superfund by the Environmental Protection Agency: Hearings Before the Subcomm. on Oversight of the House Comm. on Ways and Means, 103d Cong., 1st Sess. 32, 47 (1993).* It is EPA's policy to conserve the Trust Fund for use only at "orphan sites," those sites where no financially viable responsible party can be located. *Id.* at 50.

⁸² See, e.g., Van S. Katzman, Note, *The Waste of War: Government CERCLA Liability at World War II Facilities*, 79 VA. L. R. 1191 (1993).

⁸³ Cleanups conducted by responsible parties are referred to as "enforcement-lead" cleanups. See *Hearings*, *supra* note 81, at 47.

⁸⁴ See 42 U.S.C. § 9604(a)(1) (1988); *B.F. Goodrich Co. v. Murtha*, 958 F.2d 1192, 1197 (2d Cir. 1992).

⁸⁵ U.S. ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE, END OF YEAR FY92 SUPERFUND MANAGEMENT REPORT 111-2 (Nov. 1992).

percent of those that began in FY 1992.⁸⁶ This is in keeping with EPA's enforcement minded goal and will likely continue into the future.

In enacting CERCLA, Congress cast a very broad liability net⁸⁷ by promulgating a scheme (Appendix A) that

⁸⁶ *Id.*

⁸⁷ Congress eased the government's burden in recovering costs and damages from third parties by requiring only a minimal showing of causation, tacitly imposing strict liability and joint and several liability, and sharply curtailing the availability of defenses to liability. CERCLA defines liability by reference to section 311 of the Clean Water Act (CWA), 33 U.S.C. § 1321 (1988). See 42 U.S.C. § 9601(32) (1988). Before CERCLA was enacted, courts routinely imposed strict liability under section 311 of the CWA. See, e.g., *United States v. Tex-Ton, Inc.*, 589 F.2d 1310, 1316 (7th Cir. 1978). Relying on these cases, courts have held that CERCLA imposes strict liability. See, e.g., *United States v. Northwestern Pharmaceutical & Chem. Co.*, 579 F. Supp. 823, 843-44 (W.D. Mo. 1984). Similarly, relying on the legislative intent of Congress in passing CERCLA and on cases interpreting section 311 of the CWA, courts have held that joint and several liability can be imposed. *Id.* at 844-45. Liability for CERCLA response costs is also retroactive. See, e.g., *J.V. Peters & Co. v. EPA*, 767 F.2d 263, 265-66 (6th Cir. 1985). Thus, even if the release occurred before enactment of CERCLA, responsible parties can be held liable even if they acted reasonably. Courts have refuted claims of unconstitutionality of CERCLA's retroactive application by finding liability is contingent upon a release considered either a present condition or effect of a past disposal act. Further, even if the polluting activity occurred before 1980, any response costs could not have been incurred after CERCLA was enacted. Therefore CERCLA is not truly retroactive. See Major Michele McAinch Miller, *Defense Department Pursuit of Insurers for Superfund Cost Recovery*, 138 MIL. L. REV. 1, 6 (1992).

is at the same time retroactive,⁸⁸ strict,⁸⁹ and joint and several⁹⁰ and requiring only a minimal showing of causation.⁹¹ The statute lists four general categories of

⁸⁸ See, e.g., *United States v. South Carolina Recycling & Disposal, Inc.*, 653 F. Supp. 984, 997-98 (D.S.C. 1984) (court held that section 107 was not retroactive because it is a broad remedial provision premised upon present and future effects of defendant's past actions and is therefore not subject to due process limitations; even if retroactive, CERCLA would satisfy due process requirements because it is rationally related to a valid congressional purpose), *aff'd in part, vac'd in part*, 858 F.2d 160 (4th Cir. 1988), *cert. denied*, 490 U.S. 1106 (1989). See also *Ohio v. Georgeoff*, 562 F. Supp. 1300 (N.D. Ohio 1983) (adopting a three step approach to the issue of retroactive application of CERCLA).

⁸⁹ See *Dedham Water Co. v. Cumberland Farms Dairy*, 889 F.2d 1146, 1152-53 (1st Cir. 1989) (strict liability scheme of CERCLA is supported by Congress' rejection of House Bill that contained cause/contribution requirement); *United States v. Bliss*, 667 F. Supp. 1298, 1304 (E.D. Mo. 1987) (liability under CERCLA is strict, without regard to the liable party's fault or state of mind).

⁹⁰ Although CERCLA does not mandate joint and several liability, it permits it. See, e.g., *United States v. Monsanto*, 858 F.2d 160, 171 (4th Cir. 1988), *petition for cert. denied*, 490 U.S. 1106 (1989). If there is a reasonable basis for apportionment of damages resulting from divisible harm, however, each party is liable only for the portion of the harm she or he caused. See *United States v. Chem-Dyne Corp.*, 572 F. Supp. 802, 811 (S.D. Ohio 1983). See also *In Re Bell Petroleum Servs.*, 3 F.3d 889 (5th Cir. 1993); *United States v. Rohm & Haas Co.*, 2 F.3d 1265 (3d Cir. 1993).

⁹¹ See, e.g., *Farmland Industries, Inc. v. Morrison-Quirk Grain Corp.*, 987 F.2d 1335 (8th Cir. 1993) (liability for response costs not dependent on showing of fault or causation); *United States v. Marisol, Inc.*, 725 F. Supp. 833, 840 (M.D. Pa. 1989) (traditional tort notions such as probable cause are inapplicable to actions brought under CERCLA); *United States v. South Carolina Recycling & Disposal, Inc.*, 653 F. Supp. 984 (D.S.C. 1984) (noting that a requirement of specific proof of causation would eviscerate CERCLA's liability scheme).

PRPs:⁹² present or past owners of sites where hazardous waste releases have occurred;⁹³ present or past operators of those sites;⁹⁴ persons who arranged for the disposal of hazardous waste at a site;⁹⁵ and transporters of waste to a

⁹² 42 U.S.C. §§ 9607(a)(1)-(4) (1988).

⁹³ See, e.g., *United States v. McLamb*, 5 F.3d 69 (4th Cir. 1993) (no liability where bank held ownership primarily to protect its security interest after mortgager's default and took no steps to use or manage during its period of ownership). See also *Lansford-Coaldale Joint Water Auth. v. Tonolli Corp.*, 4 F.3d 1209 (3d Cir. 1993) (owner liability will ordinarily attach where defendant is at least a partial owner of the entity responsible for the substantive CERCLA offenses).

⁹⁴ "Actual involvement in decisions regarding the disposal of hazardous substances is a sufficient but not necessary condition to the imposition of operator liability." *Jacksonville Elec. Auth. v. Bernuth Corp.*, 996 F.2d 1107, 1110 (11th Cir. 1993) (quoting *Jacksonville Elec. Auth. v. Eppinger & Russell Co.*, 776 F. Supp. 1542, 1547-48 (M.D. Fla. 1991)).

⁹⁵ See, e.g., *AM Int'l v. International Forging Equip. Co.*, 982 F.2d 989 (6th Cir. 1993) (company did not "arrange" for disposal of chemicals by leaving chemical compounds for use by purchasers of property whose subsequent failure to maintain facility resulted in the release of hazardous substances into the environment); but see *HRW Systems, Inc. v. Washington Gas Light Co.*, 823 F. Supp. 318 (D. Md. 1993) (disposal can occur without volitional human participation; all that is required is a hazardous substance released at some point during a party's control of a facility); *United States v. Fleet Factors, Inc.*, 821 F. Supp. 707 (S.D. Ga. 1993) (a defendant is liable as an arranger where it is actually involved in the decision to dispose or has an obligation to control the hazardous substance). Defendant's "engagement of [an auctioneer] to prepare for and conduct an auction at the . . . site was an arrangement for disposal" where defendant knew the site contained large quantities of hazardous waste and should have known the auctioneer "would handle hazardous substances in completing its task." *Id.* at 725.

site.⁹⁶

Defenses under CERCLA are limited. Due to CERCLA's strict liability scheme and the absence of other specifically articulated defenses in the statute, the government, when acting as a plaintiff, has consistently maintained the defenses set forth in section 107(b)⁹⁷ are the exclusive defenses allowed under the statute and no

⁹⁶ Kaiser Aluminum & Chem. Corp. v. Catellus Dev. Corp., 976 F.2d 1338 (9th Cir. 1992) (on-site transportation of contaminated soil is sufficient to make person liable as a transporter).

⁹⁷ 42 U.S.C. § 9607(b) (1988) provides in pertinent part:

There shall be no liability [if it can be established that] the release or threat of release . . . were caused solely by--

(1) an act of God;

(2) an act of war;

(3) an act or omission of a third party other than an employee or agent of the defendant, or than one whose act or omission occurs in connection with a contractual relationship, existing directly or indirectly, with the defendant . . ., if the defendant establishes by a preponderance of the evidence that (a) he exercised due care with respect to the hazardous substance concerned, taking in to consideration the characteristics of such hazardous substance, in light of all the relevant facts and circumstances, and (b) he took precautions against foreseeable acts or omissions of any such third party and the consequences that could foreseeably result from such acts or omissions; or

(4) any combination of the foregoing paragraphs.

others can be asserted.⁹⁸ These section 107(b) defenses are acts of God,⁹⁹ acts of war,¹⁰⁰ acts or omissions of a third

⁹⁸ ALLAN J. TOPOL & REBECCA SNOW, SUPERFUND LAW AND PROCEDURE 402 (1992). However, courts have just as consistently maintained that the provision for strict liability does not mean that legal or equitable defenses cannot be asserted for other purposes, in connection with the enforcement or interpretation of the statute. See, e.g., *Town of Munster v. Sherwin-Williams Co.*, 825 F. Supp. 197 (N.D. Ind. 1993) (equitable defenses are available in a private contribution action); *Thaler v. PRB Metal Prods., Inc.*, 815 F. Supp. 99 (E.D.N.Y. 1993) (although statutory defenses in section 107(b) are exclusive, equitable doctrines of waiver, estoppel and laches are relevant and admissible on the issue of allocation of liability under a contribution plan); *Westwood Pharmaceuticals, Inc. v. National Fuel Gas Distribution Corp.*, 737 F. Supp. 1272 (W.D.N.Y. 1990) (court allowed equitable defenses of laches, standing for injunctive relief, estoppel and unclean hands to proceed to trial); *United States v. Dickerson*, 640 F. Supp. 448, 451 (D. Md. 1986) (court allowed estoppel defense that had been asserted against the government to proceed).

⁹⁹ The term "act of God" means an unanticipated grave natural disaster or other natural phenomenon of an exceptional, inevitable, and irresistible character, the effects of which could not have been prevented or avoided by the exercise of due care. 42 U.S.C. § 9601(35) (1988). In *United States v. Stringfellow*, 661 F. Supp. 1053 (C.D. Cal. 1987), the defendants contended that torrential rainfalls in 1969 and 1979, which caused lagoons at a toxic waste site to overflow and hazardous materials to be disbursed, were natural disasters constituting Acts of God. The court rejected the argument finding "that the rains were not the kind of 'exceptional' natural phenomena to which the narrow act of God defense . . . applies." *Id.* at 1061. As the rains were foreseeable based on normal climactic conditions, any harm caused by the rains could have been prevented through design of proper drainage channels. *Id.* See also *United States v. Amtreco, Inc.*, 809 F. Supp. 959 (M.D. Ga. 1993) (flood that occurred after release and after cleanup was already in progress cannot be relied upon as basis for act of God defense).

¹⁰⁰ *United States v. Shell Oil Co.*, No. _____, 1992 U.S. Dist. LEXIS 3947, 34 ERC (BNA) 1342, 22 ELR 20791 (C.D. Cal. Jan. 16, 1992) (oil companies targeted by government based on disposal of airplane fuel contaminated waste asserted act of war defense contending that U.S. exercised

party,¹⁰¹ or any combination of the above.¹⁰²

With regard to these defenses, defendants have the burden of proving each element of a defense by a preponderance of the evidence.¹⁰³ If unable to do so, and they otherwise fit within the definition of a potentially

extensive control over aviation fuel manufacturing during WWII, giving disposal site owner permit to dispose of the fuel waste. Court held that the defense implies an act of a combative nature and must be the sole cause of the release in order to prevail).

¹⁰¹ The defendant must prove that: (1) the third-party acted outside a direct or indirect contractual relationship with the defendant; (2) the defendant exercised due care with regard to its hazardous substances; and (3) the defendant took precautions against the third party's acts or omissions and their consequences. See, e.g., *United States v. South Carolina Recycling & Disposal, Inc.*, 653 F. Supp 984 (D.S.C. 1984), *aff'd in part*, 858 F.2d 160 (4th Cir. 1988), *cert. denied*, 109 S. Ct. 3156 (1989) (defense not available if any contractual link between defendant and third party); *United States v. Conservation Chem. Co.*, 619 F. Supp. 162 (D. Mo. 1985) (to assert defense, party must establish by preponderance of evidence that release was caused solely by third party).

¹⁰² As originally enacted, neither section 107(a) liability provisions or section 107(b) defenses distinguished between owners who had purchased contaminated property *after* the release had occurred on a site and who had no involvement in the presence of the contaminants and those owners who were intimately involved in disposal activities on their property. When SARA was enacted in 1986, Congress addressed this distinction, not by adding a specified defense for the innocent landowner, but by adding a definition of "contractual relationship," and deleting the "innocent landowner" from its terms. See 42 U.S.C. § 9601(35) (1988). As such, while not an enumerated defense, the innocent landowner exception of section 101(35)(a) does provide an exemption from the "in connection with" limitation of section 107(b)(3). See *United States v. Pacific Hide & Fur Depot*, 716 F. Supp. 1341 (D. Idaho 1989).

¹⁰³ 42 U.S.C. § 9607(b) (1988).

responsible party, those defendants will be presumed to have caused the release of the hazardous substance and will be responsible for the cleanup of the site.¹⁰⁴

C. The Superfund Amendments and Reauthorization Act of 1986

The taxation and funding authority of the original CERCLA was to expire on September 30, 1985.¹⁰⁵ Consequently, Congress was soon forced to reexamine the program and determine whether it was achieving congressional goals. Testimony concerning significant cost increases and the pace of cleanups dominated the hearings.¹⁰⁶ If the program's slow pace and exorbitant cost were not enough to shake Congressional confidence in the program, Congress conducted an investigation of EPA and discovered officials had diverted cleanup funds from some Superfund sites in order to increase the political fortunes of some Republican

¹⁰⁴ See, e.g., *Jersey City Redevelopment Auth. v. PPG Industries*, 655 F. Supp. 1257 (D.N.J. 1987), *aff'd*, 866 F.2d 1411 (3d Cir. 1988).

¹⁰⁵ See Omnibus Reconciliation Act of 1990, Pub. L. No. 101-508, 104 Stat. 1388.

¹⁰⁶ Congress had found that of the approximately 10,000 hazardous waste sites that could require remediation, EPA had actually begun work at only 12. U.S. OFFICE OF TECHNOLOGY ASSESSMENT, *SUPERFUND STRATEGY 3* (1985). In addition, during the five years since the statute's enactment, the average cost of a site cleanup had risen from \$2.5 million to \$8.3 million. SENATE COMM. ON ENV'T AND PUB. WORKS, *SUPERFUND IMPROVEMENT ACT OF 1985, REPORT TO ACCOMPANY S. 51, TOGETHER WITH ADDITIONAL AND MINORITY VIEWS*, S. REP. NO. 11, 99th Cong., 1st Sess. 2 (1985).

congressional candidates.¹⁰⁷

Despite numerous concerns, there was sufficient support in Congress and a belief that, given more time and money, the program could be effective.¹⁰⁸ With the disputes eventually resolved, President Reagan signed the Superfund Amendments and Reauthorization Act (SARA) into law on October 17, 1986.¹⁰⁹

The legislation called for what Congress believed were relatively modest changes to CERCLA's provisions.¹¹⁰ First, Congress expanded the resources available to EPA to conduct cleanups and investigations by setting the Hazardous Substance Trust Fund at \$8.5 billion compared to the \$1.6

¹⁰⁷ *Superfund II: A New Mandate*, 17 ENV'T REP. (BNA) 2, 5 (Feb. 13, 1987). The investigation eventually led to the resignation of Anne Burford, the EPA Administrator, the imprisonment of Rita Lavelle, EPA's top hazardous waste official, and the resignation of more than 20 senior agency officials. *Id.* See also HOUSE COMM. ON ENERGY AND COMMERCE, SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986, H.R. REP. NO. 253, 99th Cong., 1st Sess. pt. 1 at 55, reprinted in 1986 U.S.C.C.A.N. 2837.

¹⁰⁸ See Note, *Superfund Amendments and Reauthorization Act of 1986: Limiting Judicial Review To The Administrative Record In Cost Recovery Actions By The EPA*, 74 CORNELL L. REV. 1152, 1158 (1989).

¹⁰⁹ Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499, 100 Stat. 1613.

¹¹⁰ See U.S. GENERAL ACCOUNTING OFFICE, SUPERFUND: INTERIM ASSESSMENT OF EPA'S ENFORCEMENT PROGRAM 6 (Oct. 1988).

billion allotted during the previous five years.¹¹¹ Second, Congress set ambitious enforcement goals for EPA by requiring it to commence remedial action at 175 facilities during the first three years after enactment of SARA.¹¹² Third, SARA dictated a rigid framework for settlement agreements.¹¹³ Fourth, SARA sought to define cleanup standards by restricting EPA's discretion for remedy selection by requiring factual findings before selecting an appropriate remedial approach. Previously, CERCLA had left the determination of appropriate standards to EPA and simply required remedial actions be cost-effective and consistent with the NCP.¹¹⁴ These new cleanup standards are found in section 121.¹¹⁵ In implementing these changes, Congress would soon realize that, by stifling EPA's flexibility, there would be little chance of realizing the cleanup objectives mandated by CERCLA.¹¹⁶

¹¹¹ See 26 U.S.C. § 9507 (1988) (replacing the Superfund tax previously provided for in 42 U.S.C. § 9631).

¹¹² 42 U.S.C. § 9616 (1988).

¹¹³ 42 U.S.C. § 9622 (1988).

¹¹⁴ 42 U.S.C. § 9604(c)(4) (1982).

¹¹⁵ 42 U.S.C. § 9621 (1988).

¹¹⁶ See ALLAN J. TOPOL & REBECCA SNOW, SUPERFUND LAW AND PROCEDURE § 1.3 (1992).

D. The 1990 Reauthorization

In order to avoid the political in-fighting representative of the previous reauthorization process, the Congressional Budget Conference Committee, shortly before passage, simply added a provision to the Omnibus Budget Reconciliation Act of 1990¹¹⁷ extending, until September 30, 1994, the Superfund tax on oil, chemical and other companies. With this end around move, CERCLA remained a "relatively complex solution to a complex problem."¹¹⁸

E. Application of CERCLA to Federal Facilities

Largely as a result of the Superfund amendments adding CERCLA § 120, federal facilities are now subject to the provisions of CERCLA to the same extent as nongovernmental entities,¹¹⁹ including liability for hazardous waste sites.¹²⁰

¹¹⁷ Omnibus Reconciliation Act of 1990, Pub. L. No. 101-508, 104 Stat. 1388-319.

¹¹⁸ United States v. Wade, 577 F. Supp. 1326, 1331 (E.D. Pa. 1983).

¹¹⁹ While subject to the same provisions of CERCLA, there are several factors distinguishing federal/military facilities from privately owned sites. First, cleanup of federal sites usually involves a program that is national in scope and often similar to EPA's Superfund program, such as the Defense Environmental Restoration Program. This means hundreds of sites across the country are competing for scarce resources. Second, taxpayer dollars are the exclusive source of revenue to pay for cleanup activities at federal facilities. This means availability and allocation of resources is contingent upon annual congressional

Essentially, federal facilities must follow the NCP¹²¹ as well as all other applicable EPA "guidelines, rules, regulations, and criteria"¹²² in listing facilities on the federal facilities docket¹²³ and in EPA's evaluation of whether or not to list a facility/installation on the NPL¹²⁴. Once on the NPL, a federal facility is required to commence cleanup activities within six months to determine the extent and nature of any contamination.¹²⁵ If the site is not

appropriation decisions. Third, federal ownership implies a level of permanence and stability not found at privately owned sites. Fourth, existing use and access restrictions usually exceed those present at privately owned sites. This means risks based on exposure can be more easily controlled and the range of realistic future uses for federal facilities easier to predict. Fifth, sections 120 and 121 require federal facilities to comply with procedures and requirements inapplicable to privately owned sites.

¹²⁰ SARA extended CERCLA's applications to federal facilities, including those owned operated by the Department of Defense. See 42 U.S.C. § 9620 (1988). See also Exec. Order No. 12,316, 3 C.F.R. 168 (1981), reprinted in 1981 U.S.C.C.A.N. B70 (DoD liable under CERCLA for hazardous chemical spills from installations or ships).

¹²¹ When the revised NCP was issued in 1990, absent was its subpart K, intended to deal with the environmental restoration program at federal facilities and highlight what pieces of the NCP and other EPA and state guidance would have to be incorporated into cleanup activities. Laurent R. Hourclé, *Subpart K of the National Contingency Plan, "The Missing Link" in the Federal Facilities Cleanup Program*, 4 FED. FAC. ENVTL. J. 401 (1993-94). Four years after issuance of the revised NCP, all that appears in subpart K is the phrase "[reserved]". *Id.*

¹²² 42 U.S.C. § 9620(a)(2) (1988).

¹²³ *Id.* § 9620(c).

¹²⁴ *Id.* § 9620(d).

¹²⁵ *Id.* § 9620(e)(1).

listed on the NPL, state laws concerning removal and remedial action apply.¹²⁶

CERCLA also sets forth certain unique requirements with respect to federal facilities.¹²⁷

1. *Federal Facilities Compliance Docket.* EPA must establish a separate Federal Agency Hazardous Waste Compliance Docket listing federal facilities at which hazardous waste has been treated, stored or disposed, or at which reportable quantities of hazardous substances have been released.¹²⁸ There are currently 1946 facilities on the docket.¹²⁹ Once a facility is on the docket, an assessment

¹²⁶ Hourclé, *supra* note 121, at 404.

¹²⁷ James Woolford, *EPA's Federal Facility Program--An Insider's Perspective*, 3 FED. FAC. ENVTL. J. 383, 386 (1992-93).

¹²⁸ *Id.* at 387. The docket contains information on federal facilities submitted to EPA under sections §§ 3005, 3010, and 3016 of RCRA and § 103 of CERCLA. The docket serves three major purposes: (1) to identify the universe of federal facilities that must be evaluated to determine whether they pose a risk to public health and the environment sufficient to warrant inclusion on the NPL; (2) to compile and maintain information submitted to EPA on these facilities under provisions of CERCLA section 120(c); and (3) to provide a mechanism to make this information available to the public. 58 Fed. Reg. 7298 (1993).

¹²⁹ Facilities are added and deleted from the docket annually. The initial listing of federal facilities was published on February 12, 1988. 53 Fed. Reg. 4280 (1988). The eighth, and most recent, update of the docket was issued on November 10, 1993. 58 Fed. Reg. 59,790 (1993). Updates can also be obtained by calling the Federal Facilities Docket Hotline at 1-800-548-1016.

is made to determine whether or not the facility should be listed on the NPL.¹³⁰ There are now 123 federal facilities on the final NPL; of which 109 are the responsibility of the Department of Defense.¹³¹

2. *Use of Superfund Money.* Use of Superfund money on federal facilities for remedial activities is prohibited.¹³² Cleanup expenses associated with hazardous waste sites are paid for out of agency appropriations. Cleanup of DoD facilities is funded by the Defense Environmental Restoration Account (DERA).¹³³

3. *Inter-Agency Agreements.* Once a remedy is selected for a particular site, the federal agency is to enter into an Inter-Agency Agreement (IAG) with EPA to implement the remedy.¹³⁴ The IAG documents DoD, EPA, and state

¹³⁰ An HRS of 28.50 will cause facility to be placed on the NPL. See *supra* note 73 and accompanying text.

¹³¹ See U.S. ENVIRONMENTAL PROTECTION AGENCY, NATIONAL PRIORITIES LIST, PROPOSED RULE (PUB. NO. 9320.7-05L) 9-13 (1994). See also 59 Fed. Reg. 2568 (1994).

¹³² See 42 U.S.C. § 9611(e)(3) (1988); Exec. Order No. 12,580, 3 C.F.R. 193 (1987), reprinted in 42 U.S.C. § 9615 (1988).

¹³³ The legislative authority for DERA is found at 10 U.S.C. § 2703 (1988). See also Major Michele McAinch Miller, *Defense Department Pursuit of Insurers for Superfund Cost Recovery*, 138 MIL. L. REV. 1, 5 n.27 (1992).

¹³⁴ James Woolford, *EPA's Federal Facility Program--An Insider's Perspective*, 3 FED. FAC. ENVTL. J. 383, 388 (1992-3). Exec. Order No. 12,580, *supra* note 132, requires the

concurrences on a particular remedial action for an NPL site, timing for that action, and any required long-term operations and maintenance.

4. *Congressional Reporting Requirements.* Federal agencies must report to Congress annually on the progress of their CERCLA cleanup actions. In addition to the reports required for all federal agencies,¹³⁵ SARA set forth additional reporting requirements for the Department of Defense.¹³⁶

Office of Management and Budget mediate any dispute between the parties. 42 U.S.C. §§ 9620(e)(2)-(4) (1988) are the legal bases for the IAG and require one be in place not later than 6 months after conclusion of the RI/FS.

¹³⁵ 42 U.S.C. § 9620(e)(5) (1988) specifies that each Federal Department or agency shall annually report on the following items:

- (A) a report on the progress in reaching interagency agreements;
- (B) specific cost estimates and budgetary proposals involved in each interagency agreement;
- (C) a brief summary of the public comments regarding each proposed interagency agreement;
- (D) a description of the instances in which no interagency agreement was reached;
- (E) a report on the progress in conducting RI/FS work at NPL sites;
- (F) a report on the progress in conducting remedial actions;
- (G) a report on the progress in conducting remedial actions at facilities not listed on the NPL.

¹³⁶ 10 U.S.C. § 2706(a)(2) (1988) specifies that the Annual Report to Congress shall include:

- (A) a statement for each installation under the jurisdiction of the Secretary of the number of individual facilities at which a hazardous substance has been identified;

F. Summary

While enactment of CERCLA in 1980 gave rise to some optimism that a solution to the toxic waste problem had been set in motion, subsequent implementation of the Act has been marked by false starts and stops, slow progress, and general public disillusionment¹³⁷ that this issue will never be resolved. Thirteen years after the enactment of CERCLA, implementation efforts are still mired in a legal and bureaucratic gridlock absorbing available resources.¹³⁸

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- (B) the status of response actions contemplated or undertaken at each such facility;
 - (C) the specific cost estimates and budgetary proposals involving response actions contemplated or undertaken at each such facility; and
 - (D) a report the on progress in conducting response actions at facilities other than facilities on the National Priorities List.

¹³⁷ In 1992, the House Energy and Commerce Committee's Oversight Subcommittee heard testimony about an EPA contractor accused of billing the Superfund for fishing licenses, chocolates imprinted with the company logo, rental of a reindeer suit, season tickets to professional football games, executive spouse travel to Hong Kong and Korea, a musical band known as "Johnny Limbo and the Lugnuts," and a catered lobbying cruise. *See EPA Contract Mismanagement: Hearings Before the Subcomm. on Oversight of the House Comm. on Energy & Commerce*, 102d Cong., 2d Sess. 132 (1992). Representative Dingell, the Chairman of the Subcommittee, said "we hope to find out how one cleans up a toxic waste site in a reindeer suit." *Id.* *See also* Keith Schneider, *Company Accused of Bilking U.S. on Waste Sites*, N.Y. TIMES, March 20, 1992, at A34.

¹³⁸ Some groups charge over half of the money allocated for cleanup of sites has been devoted to paying legal and administrative expenses - money spent to "fix the blame" rather than "fix the problem." Marianne Lavelle, *Legal Fees Blasted; Where's the Proof*, NAT'L L.J., Feb. 18, 1991, at 37 (reporting that the American International Group has said as

While CERCLA's provisions have been successful in effecting the quick cleanup of spills, there have been no similar successes in dealing with the highly complex and diverse problems associated with the cleanup of abandoned and inactive hazardous waste sites.¹³⁹ Fundamental change to the Superfund program is, thus, inevitable if it is to ever serve the public interest by providing the means to expeditiously and effectively clean up the perilous degree of hazardous waste contamination at both federal and non-federal facilities.¹⁴⁰

much as sixty percent of CERCLA cleanup money goes to pay legal expenses).

¹³⁹ Frederick R. Anderson, *Negotiation and Informal Agency Action: The Case of Superfund*, 1985 DUKE L.J. 267 (1985). Only 40 sites have been deleted from the NPL and cleanup completed at only another 109 sites. See *Hearings Before the Subcomm. on Transportation and Hazardous Materials of the House Comm. on Energy and Commerce*, 103d Cong., 1st Sess. 2 (1993) (testimony of Jan Paul Acton, Congressional Budget Office) cited in HAZARDOUS WASTE CLEANUP PROJECT, STICKER SHOCK, RECOGNIZING THE FULL COST OF SUPERFUND CLEANUPS 4 (June 1993). In addition, none of the 123 federal sites on the NPL has been fully remediated. In fact, cleanup work has begun at only 9 percent of the sites and the remaining 91 percent had progressed no further than the study or design phase. John F. Seymour, *Tenth Circuit Rules that States May Enforce RCRA Requirements During Federal Facility Cleanups*, 4 FED. FAC. ENVTL. J. 254 (1993).

¹⁴⁰ "The public interest is not served when the government ceases to curtail the threats to the health and safety of its people and land" by failing to insure the program's purposes are adequately satisfied. Stephen M. Feldman, Note, *CERCLA Liability, Where It Is And Where It Should Not Be Going: The Possibility of Liability Release for Environmentally Beneficial Land Transfers*, 23 ENVTL. L. REP. (ENVTL. L. INST.) 294, 298 (1993). The 1994 reauthorization process is the opportunity to make these necessary changes and enable the program to finally protect and promote the public good.

In addition, the military's own environmental restoration program is now at a crossroads, transitioning from an inefficient front-end investment in studies and investigations to a more action oriented approach focusing on early remedial actions and on accelerating the cleanup process at its facilities.¹⁴¹ Congressional assistance in the form of amendments to CERCLA are needed, however, in order to maintain progress and continue success.

IV. THE DEFENSE DEPARTMENT'S ENVIRONMENTAL CLEANUP EFFORTS¹⁴²

*Defense and the environment is not an either/or proposition. To choose between them is impossible in this real world of serious defense threats and genuine environmental concerns.*¹⁴³

¹⁴¹ See U.S. DEPARTMENT OF DEFENSE, DEFENSE ENVIRONMENTAL CLEANUP PROGRAM ANNUAL REPORT TO CONGRESS FOR FISCAL YEAR 1993 (PRELIMINARY DRAFT) 2 (Dec. 1993).

¹⁴² DoD's environmental restoration program is set forth in 10 U.S.C. §§ 2701-2708 (1988 & Supp. IV 1992).

¹⁴³ Former Secretary of Defense Dick Cheney, Address at the Defense and the Environment Initiative Forum (Sept. 4, 1990), quoted in Thomas E. Baca, *DoD Environmental Requirements and Priorities*, 3 FED. FAC. ENVTL. J. 333, 334 (1992).

A. DoD's Environmental History¹⁴⁴

During the last half century, the government of the United States has spent trillions of dollars in the name of national security to build and maintain its military forces and infrastructure.¹⁴⁵ In the process, the U.S. military has generated billions of tons¹⁴⁶ of hazardous and radioactive waste; earning it the alarming distinction of being the nation's largest polluter.¹⁴⁷ While threats to the security of the United States from outside its borders have decreased dramatically over the last several years with the end of the Cold War, the internal threat posed by the presence of toxic and hazardous waste generated by the military-industrial complex remains precipitously high.

Virtually every major military installation has worked with hazardous materials generating toxic waste through such activities as production, testing, cleaning, and use of

¹⁴⁴ Note, *Beyond Judicial Scrutiny: Military Compliance With NEPA*, 18 GA. L. REV. 639, 679-81 (1984).

¹⁴⁵ PHYSICIANS FOR SOCIAL RESPONSIBILITY, COVERING THE MAP: A SURVEY OF MILITARY POLLUTION SITES IN THE UNITED STATES 1.3 (1993).

¹⁴⁶ *Hazardous Waste Problems at Department of Defense Facilities, Hearings Before a Subcomm. of the House Comm. on Government Operations*, 100th Cong., 2d Sess. 2 (1987) (statement of Rep. Synar).

¹⁴⁷ *Id.*

weapons, explosives, fuels, vehicles, and aircraft.¹⁴⁸ With inadequate disposal methods to reduce the amount of toxins produced, substances such as PCBs, dioxins, cyanides, heavy metals, pesticides, residues, alkalines, and acids have been emitted into the air, soil, and groundwater.¹⁴⁹ A few sites, such as portions of Rocky Mountain Arsenal in Denver, Colorado,¹⁵⁰ are now so polluted they face categorization as "national sacrifice zones," potentially leaving them fenced off for future generations to address.¹⁵¹

The lethal legacy of Cold War weapons production facilities literally covers the map of the United States.¹⁵² No single state or region has been let untouched. More than 11,000 sites at some 1800 installations are currently contaminated.¹⁵³ It is against this Cold War toxic backdrop

¹⁴⁸ LENNY SEIGEL ET AL., *THE U.S. MILITARY'S TOXIC LEGACY: AMERICA'S WORST ENVIRONMENTAL ENEMY* ii (National Toxic Campaign Fund ed.) (1991).

¹⁴⁹ See generally SETH SHULMAN, *THE THREAT AT HOME: CONFRONTING THE TOXIC LEGACY OF THE U.S. MILITARY* (1992) (describing the degree of hazardous waste contamination at several military installations across the United States).

¹⁵⁰ See *infra* notes 176, 290.

¹⁵¹ PHYSICIANS FOR SOCIAL RESPONSIBILITY, *COVERING THE MAP: A SURVEY OF MILITARY POLLUTION SITES IN THE UNITED STATES* 1.5 (1993).

¹⁵² See generally Van S. Katzman, Note, *The Waste of War: Government CERCLA Liability at World War II Facilities*, 79 VA. L. R. 1191 (1993) (establishing a conceptual framework to resolve the issue of government CERCLA liability at privately run World War II weapons production facilities).

¹⁵³ See *infra* part IV.B.

that the DoD environmental restoration effort was first conceived.

B. The Defense Environmental Restoration Program

The goal of the Department of Defense's restoration program is to demonstrate prudent environmental stewardship on its lands by cleaning and restoring them in a timely and fiscally responsible manner.¹⁵⁴ DoD believes environmental quality is an intrinsic part of the military mission providing essential benefits to the nation as a whole;¹⁵⁵ and if this country is to ever achieve the high standards it has set for environmental protection and restoration, government agencies must serve as the model. As the Cold War now comes to a close, DoD is in the ideal position to take the point in our efforts to battle America's newest enemy - environmental contamination.

1. Historical Background. Before passage of CERCLA, the individual DoD components implemented waste remediation programs at their installations with their own Installation

¹⁵⁴ U.S. DEPARTMENT OF DEFENSE, DEFENSE ENVIRONMENTAL RESTORATION PROGRAM ANNUAL REPORT TO CONGRESS FOR FISCAL YEAR 1992 iii (Apr. 1993).

¹⁵⁵ *Hazardous Waste Problems at Department of Defense Facilities: Hearings Before the Subcomm. on Env't, Energy & Nat. Resources of the House Comm. on Government Operations*, 100th Cong., 2d Sess. 53 (1987) (statement of Carl J. Schaefer, Jr., Dep. Asst. Sec. Def. (Env't.))

Restoration Programs (IRPs).¹⁵⁶ After passage of CERCLA, liability for costs associated with cleaning up hazardous substances was fixed to any person¹⁵⁷ who owned or operated a facility at the time of hazardous substance release.¹⁵⁸ As the definition of "person" included instrumentalities of the United States, DoD became liable for on-site installation contamination to the same extent as non-governmental entities.

Shortly after passage of CERCLA, EPA issued guidelines for hazardous waste cleanup and the DoD components used applicable portions of CERCLA and NCP regulations to guide their programs.¹⁵⁹ However, with each military department acting independently, there was no consistency in the remediation process.¹⁶⁰ In addition, although CERCLA established a "Superfund" to pay for certain cleanups,

¹⁵⁶ The Army started a pilot installation restoration program in 1975 to respond to hazardous waste contamination at such places as Rocky Mountain Arsenal and assess potential contamination at all Army installations. See Kyle E. McSlarrow, *The Department of Defense Environmental Cleanup Program: Application of State Standards to Federal Facilities After SARA*, 17 ENVTL. L. REP. (ENVTL. L. INST.) 10,120 (Apr. 1987). The Army's installation restoration program was expanded throughout DoD in 1976. *Id.*

¹⁵⁷ 42 U.S.C. § 9601(21) (1988).

¹⁵⁸ 42 U.S.C. § 9607 (1988).

¹⁵⁹ U.S. DEPARTMENT OF DEFENSE INSPECTOR GENERAL REPORT, DEFENSE ENVIRONMENTAL RESTORATION PROGRAM, 90-INS-14, at 1 (1990).

¹⁶⁰ See SHULMAN, *supra* note 149.

section 111(e)(3) limited the use to which such monies could be put with respect to remedial activities on federal facilities.¹⁶¹ As such, at least initially, funding for each military department's installation restoration program came directly out of agency operations and maintenance (O&M)¹⁶² accounts; meaning cleanup projects largely went unfunded as they had to compete for funding with other normal installation operating expenses such as electricity, heating oil, food, and building repair.¹⁶³

The Senate soon recognized DoD's efforts to improve its cleanup program were seriously hampered by a lack of funding¹⁶⁴ and recommended a new account be established to fund projects to dispose of hazardous waste from abandoned

¹⁶¹ For example, Superfund monies could be used to pay for the costs of certain natural resources damages and programs to protect the health and safety of response action workers. 42 U.S.C. § 9611(c)(1), (6) (1988).

¹⁶² Operations and maintenance accounts are funded yearly through the DoD Appropriations Act. These acts consistently have language stating that "[n]o part of any appropriation contained in this Act shall remain available for obligation beyond the current fiscal year, unless expressly so provided herein." See, e.g., Department of Defense Appropriations Act, Pub. L. No. 103-139, 107 Stat. 1437 (1993).

¹⁶³ See S. REP. NO. 292, 98th Cong., 1st Sess. 73 (1983) (these largely unbudgeted projects have been performed at some expense to other programs, creating unproductive competition for funding priorities).

¹⁶⁴ *Id.*

military installations.¹⁶⁵ Although the Senate Appropriations Committee recommended the new account be funded at \$300 million,¹⁶⁶ the House appropriations bill made no provision for establishment of any account.¹⁶⁷ The Fiscal Year 1983 DoD Appropriations Act ultimately funded the account¹⁶⁸ at \$150 million.¹⁶⁹ Although a line-item appropriation may be, to some, an inauspicious start, DoD's environmental cleanup "program" had begun.¹⁷⁰ This central account continued to be funded by line item appropriation in both 1984¹⁷¹ and 1985.¹⁷²

¹⁶⁵ *Id.*

¹⁶⁶ *Id.*

¹⁶⁷ See H.R. 4185, 98th Cong., 1st Sess. (1983).

¹⁶⁸ The account was initially referred to as "EDRA" but was later changed in 1986 to its current acronym of "DERA."

¹⁶⁹ Department of Defense Appropriations Act, Pub. L. No. 98-212, 97 Stat. 1421, 1427 (1983) provided:

ENVIRONMENTAL RESTORATION, DEFENSE

For expenses, not otherwise provided for, for environmental restoration programs, including hazardous waste disposal operations and removal of unsafe or unsightly buildings and debris of the Department of Defense, and including programs and operations at sites formerly used by the Department of Defense; \$150,000,000.

¹⁷⁰ 131 CONG. REC. 24,741 (1985).

¹⁷¹ Department of Defense Appropriations Act, Pub. L. No. 98-473, 98 Stat. 1904, 1910 (1984).

¹⁷² Department of Defense Appropriations Act, Pub. L. No. 99-190, 99 Stat. 1185, 1992 (1985).

Congress soon had thoughts of eliminating the annual line-item appropriation approach for DoD environmental restoration and discussed creating a full-fledged environmental restoration program.¹⁷³ After much debate,¹⁷⁴ in order to provide some Congressional direction to the promotion and coordination of efforts for the evaluation and cleanup of contamination¹⁷⁵ at DoD installations,¹⁷⁶ the

¹⁷³ See Amend. No. 684 to S. 51, 99th Cong., 1st Sess. (1985) (Senator Wilson (D-CA) introduced an amendment to the Senate's Superfund bill proposing a Defense Environmental Restoration Program be established). See also *Defense Department Authorization and Oversight Hearings on H.R. 1872 Before the Subcomm. on Armed Services*, 99th Cong., 1st Sess. 966-984 (1985).

¹⁷⁴ For an excellent historical background on the legislative history of DERP, see Maureen McCabe, *Introduction to the Defense Environmental Restoration Program* (1990) (unpublished LL.M. thesis, The National Law Center, The George Washington University).

¹⁷⁵ See, e.g., David B. Guldenzopf, *Applying the National Historic Preservation Act to the Defense Environmental Restoration Program*, 4 FED. FAC. ENVTL. J. 319 (1993). Executive Order 12,580 on Superfund Implementation, signed by President Reagan on January 23, 1987, assigned responsibility to the Secretary of Defense for carrying out DERP within the overall framework of CERCLA. In 1984, Congress consolidated DoD programs for the cleanup of hazardous waste into a separate appropriation entitled the Defense Environmental Restoration Account (DERA) under the Defense Appropriations Act. Funding for DERA has increased from \$150 million in FY84 to \$1.962 billion in FY94. While DERA now provides the primary funding mechanism for DERP, funding for restoration activities at bases scheduled for closure is provided for in Military Construction Acts (MILCON).

¹⁷⁶ One of the most publicized examples of the military's hazardous waste problem is the Army's Rocky Mountain Arsenal in Colorado. The Arsenal, which is adjacent to the city of Denver, was the site of the production of chemical warfare agents and commercial pesticides, such as nerve agent GB and mustard and phosgene

Defense Environmental Restoration Program (DERP)¹⁷⁷ was finally established as § 211 of the Superfund Amendments and

gases, from the 1940s until the 1960s. In the 1970s, it was discovered these operations had been contaminating ground water in the area. However, it was not until the early 1980's that the magnitude of the problem was such a multi-billion dollar detoxificant was necessary. The Arsenal now harbors corroded canisters of mustard gas, lethal phosphorous wastes from incendiary bombs, unexploded rockets and mortar shells embedded in a former firing range, millions of cubic yards of oil peppered with pesticides and an abandoned five story production plant contaminated with nerve gas. Two vast man-made lagoons, once used as dump pits for toxic chemical and biological wastes are the worst menaces of all. Toxic wastes have leached out of both ponds, infecting the area's ground water and killing crops. Under the most conservative of estimates, the total cost to clean up the Arsenal will likely exceed \$1.7 billion. Telephone Interview with Captain Jonathan Potter, Army Environmental Litigation Attorney (Jan. 10, 1994). See also Choi & Daley, *Hazardous Waste Management Initiatives in DoD*, 19 DEF. MGT. J. 30, 33 (1983); *Rockies Menace: Toxic Waste of an Arsenal*, TIME, Dec. 27, 1982, at 70.

¹⁷⁷ 10 U.S.C. §§ 2701-2708, 2810 (1988 & Supp. IV 1992). DERP is centrally managed by the Office of the Secretary of Defense. Policy direction and oversight of DERP is the responsibility of the Deputy Under Secretary of Defense (Environmental Security). Program execution and implementation is decentralized to the Military Departments (Departments of the Army, Navy and Air Force, and the Defense Logistics Agency.) The Army's principal manager for DERP is the Deputy for Environment, Safety, and Occupational Health, Office of the Assistant Secretary of the Army (Installation, Logistics and Environment); for the Navy, the Deputy Director for Environment, Assistant Secretary of the Navy (Installations and Environment); for the Air Force, the Deputy Assistant Secretary, Environment, Safety, and Occupational Health; for DLA, the Office of Installation Services and Environmental Protection, Environmental Policy Office. Additionally, the U.S. Army Corps of Engineers is charged with the execution of DERP at Formerly Used Defense Sites (FUDS). Although formally established in 1986, the military departments actually began environmental restoration as early as 1974. U.S. DEPARTMENT OF DEFENSE INSPECTOR GENERAL REPORT, DEFENSE ENVIRONMENTAL RESTORATION PROGRAM, 90-INS-14, at i (1990).

2. *Current Program.* The statutory goals¹⁷⁹ of DERP are: (1) the identification, investigation, research and development, and cleanup of contamination from hazardous substances, pollutants, and contaminants; (2) correction of other environmental damage, and detection and disposal of unexploded ordnance creating an imminent and substantial endangerment to the public health or welfare or to the environment; and (3) demolition and removal of unsafe buildings and structures at sites formerly used or under the jurisdiction of the Secretary of Defense.¹⁸⁰ Because these are program goals and not requirements, DoD¹⁸¹ retains discretion to prioritize its cleanup activities among these

¹⁷⁸ Section 211 established DERP. See Pub. L. No. 99-499, 100 Stat. 1613, 1719 (1986).

¹⁷⁹ 10 U.S.C. § 2701(b) (1988).

¹⁸⁰ Although DERP does not define "jurisdiction," as a practical matter, if DoD uses a site then it would be under the jurisdiction of the Secretary of Defense. See, e.g., *United States v. Rodgers*, 466 U.S. 475, 479 (1984) (a federal department has jurisdiction when it has the power to exercise authority in a particular situation).

¹⁸¹ While most of the President's CERCLA authority has been delegated to EPA pursuant to 42 U.S.C. § 9615 (1988), the President delegated his CERCLA response action authority under §§ 9604(a)-(b) with respect to DoD facilities to the Secretary of Defense. See Exec. Order No. 12,316, 46 Fed. Reg. 42,237 (1981), as amended by Exec. Order No. 12,418, 48 Fed. Reg. 20,981, revoked by and current delegation of authority at Exec. Order No. 12,580, 52 Fed. Reg. 2923 (1987). See also 40 C.F.R. §§ 300.120(b), 300.175(b)(4) (1993).

three categories of environmental damage.¹⁸²

Along with the cleanup program, DERP established a program of research, development, and demonstration with respect to hazardous waste,¹⁸³ and requires the Secretary of Health and Human Services (acting through the Agency for Toxic Substances and Disease Registry)¹⁸⁴ to develop toxicological profiles of at least 25 of the most common unregulated hazardous substances¹⁸⁵ at DoD installations.¹⁸⁶

DERP is currently¹⁸⁷ comprised of the Installation

¹⁸² Maureen McCabe, Introduction to the Defense Environmental Restoration Program 33 (1990) (unpublished LL.M. thesis, The National Law Center, The George Washington University).

¹⁸³ 10 U.S.C. § 2702 (1988).

¹⁸⁴ For an overview of the ATSDR, see Barry L. Johnson, *Implementation of Superfund's Health-Related Provisions by the Agency for Toxic Substances and Disease Registry*, 20 ENVTL. L. REP. (ENVTL. L. INST.) 10,277 (July 1990).

¹⁸⁵ "Unregulated hazardous substances" are those substances defined as hazardous under CERCLA 101(14) and not regulated under the Toxic Substances Control Act, the Safe Drinking Water Act, the Clean Air Act, or the Clean Water Act. See 10 U.S.C. §§ 2704(a)(2), 2707 (1988).

¹⁸⁶ 10 U.S.C. § 2704(f) (1988).

¹⁸⁷ The original DERP contained four components: the IRP, Other Hazardous Waste Operations (OHW), Building Demolition and Debris Removal (BD/DR), and Hazardous Waste Disposal (HWD). Since 1987, only the IRP, OHW and BD/DR are conducted under DERP.

Restoration Program (IRP),¹⁸⁸ Other Hazardous Waste (OHW) operations,¹⁸⁹ and Building Demolition and Debris Removal (BD/DR).¹⁹⁰ Like the EPA's Superfund program, DERP follows

¹⁸⁸ The IRP is where potential contamination at DoD installations and formerly used properties is investigated and, as necessary, site cleanups are conducted. The processes comprising the three standard operational phases of the IRP parallel the NCP. They include the preliminary assessment (PA), where installation wide studies are conducted to determine if sites are present posing hazards to public health or the environment; the site inspection (SI), where information is gathered to evaluate the site and determine the response action necessary; and the remedial investigation/feasibility study (RI/FS), where contaminated sites are investigated fully to determine the degree of risk to the general population posed by the contamination and evaluations made as to appropriate remedial action alternatives for each site. After agreement is reached with appropriate EPA and/or state regulatory authorities on how to clean up the site, remedial design/remedial action (RD/RA) work begins. During this phase, detailed design plans for the cleanup are prepared and implemented. See Harold E. Lindenhofen et al., *Measuring Progress in DoD's Installation Restoration Program*, 4 FED. FAC. ENVTL. J. 167 (1993). The current DoD priorities for cleanup of DoD hazardous waste sites under the IRP are: Priority A - removal actions upon discovery of an imminent threat due to hazardous or toxic substances or unexploded ordnance and sites listed on the NPL; Priority B - investigation or remedial activity at sites not listed or proposed for listing on the NPL; and Priority C - all preremedial work for discovery, notification, and inventory programs, non-site specific.

¹⁸⁹ The OHW program includes correcting other environmental damage (such as detection and disposal of unexploded ordnance), creating an imminent and substantial danger to human health, welfare, or to the environment.

¹⁹⁰ BD/DR includes demolition and removal of unsafe buildings and structures including buildings and structures on DoD sites formerly used by, or under the jurisdiction of, the Secretary of Defense. The BD/DR is currently unfunded.

the provisions of the NCP.¹⁹¹

Fundamentally, SARA §§ 120 and 211 took from DoD the latitude which it had exercised in running the individual military departments' programs and strengthened Congressional, state, and EPA oversight and involvement in DoD environmental restoration activities. The statute now essentially requires DoD to use the same CERCLA¹⁹² and NCP processes¹⁹³ as those used by other federal facilities¹⁹⁴ and

¹⁹¹ Once a hazardous waste site has been discovered and listed in EPA's data base, it progresses through a series of increasingly detailed evaluations designed to identify and assess uncontrolled hazardous substances. *Hearings Before the Subcomm. on Environment, Energy, and Natural Resources of the House Comm. on Government Operations*, 101st Cong., 1st Sess. 3 (1989) (testimony of Richard L. Hembra, Director, Environmental Protection Issues, Resources, Community, and Economic Development Division, U.S. General Accounting Office).

¹⁹² 10 U.S.C. § 2701(a)(2) (1988) provides that DERP activities regarding contamination from hazardous substances, pollutants, and contaminants must be carried out subject to, and in a manner consistent with, CERCLA Section 120. Section 120(a) provides that each agency of the United States must comply with CERCLA to the same extent, procedurally and substantively, as any nongovernmental entity. 42 U.S.C. § 9620(a).

¹⁹³ The NCP is codified at 40 C.F.R. §§ 300-373.3 (1993). Once a release is discovered, a PA/SI is undertaken as soon as possible. See 40 C.F.R. § 300.410(a) (1993). The PA/SI data is used to determine whether or not to place the facility on the NPL. See 40 C.F.R. §§ 300.420(b)(iv), 300.425(d) (1993).

¹⁹⁴ 42 U.S.C. §§ 9620(a)(2), (b) (1988) discuss facilities owned or operated by a department, agency, or instrumentality of the United States.

nongovernmental activities.¹⁹⁵ Therefore, DoD¹⁹⁶ must remediate all hazards to human health and the environment, which result from past activities, to CERCLA/SARA standards for sites listed on the NPL,¹⁹⁷ state law must be followed for removal and remedial actions at non-NPL sites.¹⁹⁸

As of September 30, 1993, DoD had 19,694 active

¹⁹⁵ Although debatable, the DERP process has been recognized as providing the "functional equivalent" of a NEPA review for remedial investigations and actions. David B. Guldenzopf, *Applying the National Historic Preservation Act to the Defense Environmental Restoration Program*, 4 FED. FAC. ENVTL. J. 319, 320 (1993).

¹⁹⁶ DoD's role in DERP is to establish centralized policy, provide consistency, and manage the program. See *Department of Defense Environmental Activities: Hearings Before the Environmental Restoration Panel of the House Comm. on Armed Services*, 100th Cong., 1st Sess. 4 (1989). Actual execution of the program at each installation is left to each military service and the Defense Logistics Agency. See U.S. DEPARTMENT OF DEFENSE, DEFENSE ENVIRONMENTAL RESTORATION PROGRAM ANNUAL REPORT TO CONGRESS FOR FISCAL YEAR 1992, at 1 (Apr. 1993).

¹⁹⁷ A RI/FS must be initiated within 6 months of the facility's inclusion on the NPL. 42 U.S.C. § 9620(e)(1) (1988). The IAG must be signed within 180 days after EPA has reviewed the results of the RI/FS. 42 U.S.C. § 9620(e)(2) (1988). EPA has final approval authority over RAs and the RA phase must be commenced within 15 months after the RI/FS is completed. 42 U.S.C. § 9620(e)(4)(A) (1988).

¹⁹⁸ 42 U.S.C. § 9620(a)(4) (1988). State laws can be as stringent and rigorous as the state wants. CERCLA only requires that they be no more stringent when applied to a federal facility as when applied to a nongovernmental facility. DoD has developed a model agreement called the Defense-State Memorandum of Agreement (DSMOA) to provide for reimbursing the state for costs associated with service rendered because of DERP activities. See 54 Fed. Reg. 31,359 (1989) for a model DSMOA.

hazardous waste sites on 1792 installations in the IRP.¹⁹⁹ Of these sites, ninety-four locations²⁰⁰ are so polluted they are registered on the NPL, along with an additional sixteen recommended for inclusion (Appendix B). Of these NPL sites, sixty-five are scheduled to be closed under DoD's base realignment and closure efforts. DoD has also identified another fifteen formerly used sites²⁰¹ for inclusion on the NPL.

Installation Restoration Program
Summary of Installations and Sites²⁰²

¹⁹⁹ U.S. DEPARTMENT OF DEFENSE, DEFENSE ENVIRONMENTAL RESTORATION PROGRAM ANNUAL REPORT TO CONGRESS FOR FISCAL YEAR 1993 (PRELIMINARY REPORT) 7 (Jan. 1994).

²⁰⁰ At seven of these installations, two separate areas are actually listed on the NPL, bringing the official number to 101.

²⁰¹ DERP execution at former military installations or formerly used defense sites ("FUDS") has been delegated to the Army Corps of Engineers. See Maureen McCabe, Introduction to the Defense Environmental Restoration Program 57 (1990) (unpublished LL.M. thesis, The National Law Center, The George Washington University).

²⁰² U.S. DEPARTMENT OF DEFENSE, DEFENSE ENVIRONMENTAL RESTORATION PROGRAM ANNUAL REPORT TO CONGRESS FOR FISCAL YEAR 1993 (PRELIMINARY REPORT) 7 (Jan. 1994); Telephone Interview with Mary Raguso, Program Analyst, Office of the Assistant Deputy Under Secretary of Defense for Cleanup (Mar. 18, 1994). For comparison, IRP statistics for FY92 and FY91 are as follows:

Installation Restoration Program FY92

Service	Number of Installations	Number of Sites
ARMY	1,144	10,850
NAVY*	282	3,423
AIR FORCE	332	4,970
DLA**	34	451
total	1,792	19,694

* Includes Marine Corps

** Defense Logistics Agency

3. *Funding.* DERP provides central funding for cleanup

Service	Installations	Sites
ARMY	1,144	10,603
NAVY	290	3,258
AIR FORCE	332	4,474
DLA	34	460
total	1,800	18,795

Installation Restoration Program FY91

Service	Installations	Sites
ARMY	1,265	10,578
NAVY	247	2,409
AIR FORCE	331	4,354
DLA	34	319
total	1,877	17,660

activities from a separate and "fenced"²⁰³ appropriation, the Defense Environmental Restoration Account (DERA), codified in 10 U.S.C. § 2703.²⁰⁴ The account is funded by two sources. The first source is from Congress, where all funds appropriated to DoD to carry out environmental restoration,²⁰⁵ either under DERP or under any provision of law, must be appropriated to the transfer account.²⁰⁶ The second funding source is from reimbursement by responsible

²⁰³ Although section 211 indicates transferred funds shall be merged with and available for the same purposes as the account of fund to which transferred, funds can only be obligated to carry out environmental restoration functions. 10 U.S.C. § 2703(c) (1988). Thus, although they are part of another DoD account, they are set aside or "fenced" strictly for environmental purposes and cannot otherwise be used, e.g., for operations and maintenance, military construction, or procurement purchases.

²⁰⁴ DERA monies need not be obligated in the year in which they were appropriated and account balances may be carried over from year to year. However, account monies must be transferred into another account for use. Once transferred, the monies take on the characteristics of the new account. For example, account monies transferred to the operations and maintenance account (OMA) become one-year funds. Monies not spent in the allotted time, in this case by the end of the fiscal year, will then be returned to DERA. See U.S. GENERAL ACCOUNTING OFFICE, DOD ESTIMATES FOR CLEANING UP CONTAMINATED SITES IMPROVED BUT STILL CONSTRAINED, 8 n.1 (1991).

²⁰⁵ Although section 211 does not define "environmental restoration," current DoD interpretation excludes response actions arising out of current hazardous waste operations and, instead, obligates and expends DERA funds only on the activities listed as program goals of DERP, efforts to clean up hazardous waste releases from the past. See Department of Defense, Draft Management Guidance for Execution of the FY94/95 and Development of the FY96 Defense Environmental Restoration Program 3 (Dec. 8, 1993) (on file with author).

²⁰⁶ 10 U.S.C. § 2703(a)(1) (1988).

parties for the costs of response actions financed by DoD.²⁰⁷ Any money recovered as a result of a DoD response action is thereafter credited to the transfer account.²⁰⁸ Funds are then transferred²⁰⁹ from the centralized Environmental Restoration, Defense appropriation account to the DoD component's (Army, Navy, Air Force, Defense Logistics Agency) appropriations account²¹⁰ where they become available for the same time period as other funds in the account to which DERA funds are transferred.²¹¹

In 1985, DoD's cost estimates for the entire environmental restoration program ranged from \$5 billion to \$10 billion for 400-800 potential sites. In more recent DoD estimates, it is projected the total cost of the IRP will exceed \$24 billion at over 7,100 sites,²¹² with some

²⁰⁷ 42 U.S.C. § 9607 (1988).

²⁰⁸ 10 U.S.C. § 2703(e) (1988).

²⁰⁹ Apparently, however, only a small percentage of expenditures from DERA have actually been used for cleanups. Remediation appropriations have essentially "produced little more than mountains of very expensive and neatly stacked paperwork." Patrick R. Vasicek, *Getting to Cleanup: The Removal Site Evaluation Process*, 4 FED. FAC. ENVTL. J. 283, 284 (1993).

²¹⁰ Examples include Operations and Maintenance, Procurement, and Demonstration, Test & Evaluation accounts.

²¹¹ 10 U.S.C. § 2703(b) (1988).

²¹² Nicholas I. Morgan, *FFERDC Interim Report Sets Landmark Approach for Federal Facility Cleanup*, 4 FED. FAC. ENVTL. J. 121, 122 (1993), citing MILTON RUSSELL ET AL., *supra* note 23. See also *DoD's Environmental Activities: Hearings*

estimates running as high as \$100 to \$200 billion.²¹³

However, funding for the program has only increased in the last ten years from \$150 million in 1984²¹⁴ to \$1.962 billion in fiscal year 1994.²¹⁵ With the average cost of a single NPL site remediation running between \$25-30 million,²¹⁶ funding is insufficient.²¹⁷

Since 1984, approximately \$6.5 billion has been invested in the cleanup program, with most of the cost going to investigation and studies on the significance and magnitude of the problem.²¹⁸ While DoD has determined approximately one-third of the 19,000+ identified sites pose no environmental threat, more than 11,000 active sites

Before the Environmental Restoration Panel of the House Comm. on Armed Services, 100th Cong., 1st Sess. 2 (1989) (statement of Rep. Ray, Chairman).

²¹³ John Broder, *Report Faults Pentagon on Toxic Cleanup*, L.A. TIMES, July 11, 1990, at A14.

²¹⁴ Department of Defense Appropriations Act, Pub. L. No. 98-212, 97 Stat. 1421, 1427 (1983).

²¹⁵ Department of Defense Appropriations Act, Pub. L. No. 103-139, 107 Stat. 1418, 1425 (1993).

²¹⁶ Manuscript from John McKinney, CERCLA Reauthorization Outline and Resource Materials, at the 13th Annual RCRA/CERCLA and Private Litigation Update, Wash., D.C., sponsored by the A.B.A. Sec. Nat. Resources, Energy & Envtl. L. (Dec. 9, 1993) (on file with author).

²¹⁷ See Roger N. Boyd, *Who Pays for Superfund Cleanups at DoD-Owned Sites?*, 2 NAT. RESOURCES & ENV'T 11 (1986).

²¹⁸ U.S. DEPARTMENT OF DEFENSE, DEFENSE ENVIRONMENTAL CLEANUP PROGRAM ANNUAL REPORT TO CONGRESS FOR FISCAL YEAR 1993 (PRELIMINARY DRAFT) 1 (Dec. 1993).

remain, with only 416 fully cleaned up.²¹⁹

Historically, each study phase in the cleanup process has taken a minimum of 18 months, with the entire process taking many years before actual cleanup has begun.²²⁰ Business-as-usual must be changed. A fundamental redesign of the cleanup process, based on an approach eliminating needless delays while protecting public health and the environment, is essential. While cleaning up these sites will certainly not be easy, a well-designed, adequately funded, and cost-efficient environmental restoration program for the Department of Defense would represent a critical investment in the nation's environment and a real commitment to change. However, the President and Congress have simply not provided the support necessary to meet DoD's environmental goals. Several amendments to CERCLA are necessary in order to be given a reasonable chance of success.

V. SOLUTIONS?

One of the biggest problems is the problem represented by the Superfund . . . where you've got to fix something bad that's already happened, where

²¹⁹ *Id.*

²²⁰ *Id.*

*we spend too much money on the lawyers, too much money on consultants, the endless decisions. [I]f you have specific ideas about what we could do to make the whole waste management issue better handled by us in a responsible way, I would very much like to have it.*²²¹

Even DoD believes the overall management of its hazardous waste program has been unsatisfactory.²²²

Significant improvements to the current Superfund law are required in order that DoD may achieve its goal of prudent environmental stewardship.²²³ The challenge is to find ways to do more with less, to accelerate the cleanup process, to involve states in the decision making process, and to return uncontaminated military property to productive use as soon as possible.

A. Recommendations for Reforming the Cleanup Standards and Determining the Appropriate Extent of the Remedy at a Site

²²¹ President-Elect Bill Clinton, Address at the Economic Summit, Little Rock, Arkansas (Dec. 15, 1992), *quoted in* HAZARDOUS WASTE CLEANUP PROJECT, STICKER SHOCK, RECOGNIZING THE FULL COST OF SUPERFUND CLEANUPS i (June 1993).

²²² U.S. DEPARTMENT OF DEFENSE INSPECTOR GENERAL REPORT, DEFENSE ENVIRONMENTAL RESTORATION PROGRAM, 90-INS-14, at 1 (1990).

²²³ See U.S. DEPARTMENT OF DEFENSE, DEFENSE ENVIRONMENTAL RESTORATION PROGRAM ANNUAL REPORT TO CONGRESS FOR FISCAL YEAR 1992, at iii (Apr. 1993).

*Community residents often become impatient with lengthy cleanups, and they seldom insist that the result should be a pristine environment.*²²⁴
*It doesn't make any sense to clean up a rail yard in downtown Newark so it can be a drinking water reservoir.*²²⁵

Cleanup goals and remedy selection are at the heart of the Superfund program. More than any other part, these elements directly influence protection of human health and the environment and whether cleanup dollars are efficiently spent or wasted on ineffective remedies.²²⁶ Among CERCLA

²²⁴ John E. Seymour, *Public Participation in Federal Facility Cleanups*, 4 FED. FAC. ENVTL. J. 103, 107 (1993). See also, U.S. GENERAL ACCOUNTING OFFICE, ENVIRONMENTAL PROTECTION: MEETING PUBLIC EXPECTATIONS WITH LIMITED RESOURCES 8 (June 1991) (citing a N.Y. Times poll in which 74 percent of the 1515 adults interviewed agreed that "protecting the environment is so important that requirements and standards cannot be too high").

²²⁵ (Then) Governor Jim Florio (D-NJ), and a principle author of CERCLA, *quoted in* Keith Schneider, *New View on Environment: Policy Driven By Panic, Not Science*, N.Y. TIMES, Mar. 21, 1993, at 30.

²²⁶ See NATIONAL COMMISSION ON SUPERFUND, FINAL CONSENSUS REPORT OF THE NATIONAL COMMISSION ON SUPERFUND (PRE-PUBLICATION DRAFT) vi. (Dec. 21, 1993). The National Commission on Superfund was organized in December 1992 by the Keystone Center, a nonprofit public policy foundation in Keystone, Colorado, and the Environmental Law Center of the Vermont Law School. The Commission was comprised of twenty-six senior leaders from the manufacturing, chemical, insurance, and banking industries, environmental, citizen, and public interest groups, municipalities, and state and local governments, and academia. Their goal was to recommend legislative changes to improve the effectiveness of CERCLA. *Id.* at 89.

"cognoscenti,"²²⁷ this is known as the "how clean is clean" issue - i.e., what degree of final site remediation is appropriate,²²⁸ and should the costs at a site be doubled or even tripled so as to remove all potential risk remaining at the site?²²⁹

The principle criticisms of EPA in this area include the lack of consistency among regions when selecting remedies, speculative future risks,²³⁰ a lack of common data bases or information sources for remedies used,²³¹ and a misplaced, disproportionate emphasis on cost.²³²

²²⁷ "Cognoscenti:" a person having or claiming expert knowledge in a certain area. WEBSTER'S NEW INTERNATIONAL DICTIONARY 440 (3d ed. 1969), construed in J. GORDON ARBUCKLE ET AL., ENVIRONMENTAL LAW HANDBOOK 86 (1989).

²²⁸ See *Administration of the Federal Superfund Program: Hearings Before the Subcomm. on Investigations and Oversight of the House Comm. on Public Works and Transportation*, 102d Cong., 2d Sess. 701 (1992) (statement of Richard Hembra, Director, Environmental Protection Issues, Resources, Community, and Economic Development Division, U.S. General Accounting Office).

²²⁹ See HAZARDOUS WASTE CLEANUP PROJECT, TECHNOLOGICAL REALITY: THE LIMITS OF TECHNOLOGY IN DEALING WITH HAZARDOUS WASTE SITE CLEANUPS 3 (June 1993).

²³⁰ The U.S. Office of Technology Assessment has estimated about 50 percent of cleanups address speculative risks, which preempt spending to identify and reduce current risks at other sites. U.S. OFFICE OF TECHNOLOGY ASSESSMENT, COMING CLEAN: SUPERFUND PROBLEMS CAN BE SOLVED 3 (Oct. 1989).

²³¹ U.S. GENERAL ACCOUNTING OFFICE, SUPERFUND: PROBLEMS WITH THE COMPLETENESS AND CONSISTENCY OF SITE CLEANUP PLANS 5 (1992).

²³² See Martin E. Siegel & Mark Petts, *Lessons DOE Should Learn from EPA's Implementation of Superfund*, 3 FED. ENVTL. J. 111, 113 (1992).

As an example, must all waste and contamination be removed from a particular site?²³³ Should there be complete excavation? Is it sufficient waste simply be contained at a site to prevent further migration? One remedial option may cost 20 million dollars and provide x level of protection; another 40 million and provide 3x level of protection; while a third may cost 400 million dollars and still provide only 4x level of protection.²³⁴

In a recent environmental study, it was shown people "exhibit surprisingly modest expectations about how clean the site could be made."²³⁵ DoD must ask itself: just how great a risk do these military hazardous waste sites pose to human health and the environment and how do these risks compare to risks posed by other public health problems?²³⁶

²³³ See, e.g., U.S. OFFICE OF TECHNOLOGY ASSESSMENT, SUPERFUND STRATEGY (Apr. 1985).

²³⁴ J. GORDON ARBUCKLE ET AL., ENVIRONMENTAL LAW HANDBOOK 86 (1989).

²³⁵ Milton Russell et al., *Hazardous Waste Remediation: The Task Ahead*, HAZARDOUS WASTE REMEDIATION PROJECT, WASTE MANAGEMENT RESEARCH AND EDUCATION INSTITUTE, UNIVERSITY OF TENNESSEE 32-33 (1991).

²³⁶ According to the EPA's Science Advisory Board, many environmental problems it considered to be of relatively low risk, such as contamination from hazardous waste sites, were receiving extensive public attention and federal resources, while problems the group judged to be of greater risk, such as indoor pollution and pesticides, were receiving far less attention and resources. See U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF POLICY, PLANNING, AND EVALUATION, UNFINISHED BUSINESS: A COMPARATIVE ASSESSMENT OF ENVIRONMENTAL PROBLEMS Table 3 (1987).

Finally, how much are we spending on hazardous waste site cleanups as compared to other public health problems?²³⁷

CERCLA policy has basically developed in four stages: (1) the 1980 statute which gave EPA almost total discretion to make rational decisions on a site-by-site basis; (2) to the 1982 EPA regulations which preserved most of this discretion; (3) to the 1985 EPA regulations with many ambiguous provisions but with an overall thrust towards more expensive cleanups; and (4) to the 1986 Superfund Amendments and section 121 which pointed inexorably towards even more expensive cleanups - in almost total disregard of whether there will be any further health/environmental benefits at a site - even though it was Congress' attempt to answer the question of how clean is clean.²³⁸

Section 121(a) requires the President of the United States to select a remedial action protective of human health and the environment, is cost effective, and performed

²³⁷ One organization has estimated the amount the federal government spends on hazardous waste remediation to be in the neighborhood of 25 billion dollars per year, while only \$2 billion is spent on cancer research, \$1.4 billion on childhood immunization, \$1.2 billion on HIV/AIDS research, \$700 million on heart disease research, and \$400 million on breast and cervical cancer screening. See HAZARDOUS WASTE CLEANUP PROJECT, STICKER SHOCK, RECOGNIZING THE FULL COST OF SUPERFUND CLEANUPS 17 (June 1993).

²³⁸ *Id.* at 87.

in accordance with the NCP.²³⁹ Treatment is strongly preferred over "disposal" or "leaving in place" options.²⁴⁰ In fact, treatment which permanently and significantly reduces the number of hazardous substances present at a site is currently preferred over other remedies and EPA must select remedies utilizing permanent solutions and alternative treatment technologies to the maximum extent practicable.²⁴¹ Off-site transport and disposal of untreated waste is the "least favored" alternative where "practicable" treatment technologies are available.²⁴²

This preference for permanent treatment technologies is a problem. In fact, section 121(c) emphasizes the bias towards zero tolerance and total and permanent

²³⁹ 42 U.S.C. § 9621(a) (1988).

²⁴⁰ Disposal and treatment are given the same meaning as provided in section 1004 of the Solid Waste Disposal Act. 42 U.S.C. §§ 6903(3), (34) (1988).

²⁴¹ 42 U.S.C. § 9621(b)(1) (1988) attempts to quantify the concept of permanence by including language that assessment of alternative treatment technologies or permanent solutions must choose the remedy resulting in a permanent and significant decrease in the toxicity, mobility, or volume of the hazardous substance, pollutant, or contaminant. No reference is made, however, and no regard given, to the degree of risk remaining to the population and environment at a particular site if the remedy is implemented.

²⁴² 42 U.S.C. § 9621(b)(1) (1988). Section 121(d)(3) further provides that any off-site disposal facility must not be releasing any waste into groundwater, surface water, or soil, and all other units at the facility are controlled by an approved RCRA corrective action program. 42 U.S.C. § 9621(d)(3) (1988).

treatment/destruction by requiring a site be reviewed at least every five years to ensure health and the environment are still being protected whenever the remedy selected will result in "any hazardous substances, pollutants, or contaminants remaining at the site."²⁴³

The idea of achieving a "permanent" cleanup certainly has intrinsic merit. However, while there is strong statutory support for development of permanently effective treatment technology, neither CERCLA nor SARA say exactly what "permanent," "effective," or "treatment" really mean. This ambiguity has fueled public criticism of specific cleanups and clashes between statutory requirements and implementation.²⁴⁴ In light of the additional requirement of section 121(c)²⁴⁵ that even sites satisfying cleanup

²⁴³ 42 U.S.C. § 9621(c) (1988).

²⁴⁴ U.S. OFFICE OF TECHNOLOGY ASSESSMENT, COMING CLEAN: SUPERFUND PROBLEMS CAN BE SOLVED 139 (Oct. 1989).

²⁴⁵ 42 U.S.C. 9621(c) (1988) provides:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less than each 5 years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section 9604 [response authority] or 9606 [abatement actions] of this title, the President shall take or require such action. The President shall report to Congress a

standards still be reviewed every five years, unless all hazardous substances, pollutants, and contaminants are removed, it is difficult to imagine any circumstance under which a military site can ever achieve the degree of permanence sufficient to satisfy these current requirements.

EPA has attempted to differentiate between treatment, means of attaining permanence, and containment technology; not, however, in distinguishing what constitutes a "permanent remedy."²⁴⁶ EPA has stated that treatment technology "will be used most often for highly toxic, highly mobile waste, whereas containment is generally reserved for low concentrations of toxic materials or relatively immobile wastes."²⁴⁷ Permanence would therefore seem to imply cleanup objectives are achieved when no further cleanup action is needed at the site. It does not, nor should not, imply reaching zero contamination or zero risk.

This mandate for permanence must be eliminated and instead, the long-term reliability of a remedy considered. The focus must be changed to one whereby a remedy achieves a

list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

²⁴⁶ See Siegel & Petts, *supra* note 232, at 114.

²⁴⁷ U.S. ENVIRONMENTAL PROTECTION AGENCY, ADVANCING THE USE OF TREATMENT TECHNOLOGIES FOR SUPERFUND REMEDIES (OSWER DIR. NO. 9355.0-26) 16 (Feb. 21, 1989).

degree of permanence through reduction of the underlying cause of the intrinsic hazard, such as toxicity, compared to the current statutory attention to reducing mobility and volume, quantitative values which often time have little connection or correlation to the risks involved at a particular site.

The Superfund program has also been criticized for taking too long to decide upon remedies at a site and for the slow pace of achieving cleanup.²⁴⁸ A time-consuming site-specific decision making process can be pointed to as a major source of this delay. Making decisions on a site-by-site basis also lends itself to criticism about the consistency of decisions nationwide. Changes to the current remedy/cleanup process can result in less cost while still achieving the underlying goal of protecting public health and the environment.²⁴⁹ The use of presumptive remedies,

²⁴⁸ U.S. Environmental Protection Agency, Superfund Administrative Improvements (Sept. 1993) (unpublished manuscript, on file with author).

²⁴⁹ Some might view the reauthorization process as the time to consider whether the nation is literally throwing scare resources down a bottomless hazardous waste pit; money which could be better spent on the current administration's social welfare agenda and other domestic priorities and programs. This is a strong argument, at least from a political standpoint, as gains could be both greater and more tangibly appreciated by the electorate. For instance, in FY93, twenty five billion dollars was budgeted for hazardous waste remediation while the budget for breast and cervical cancer screening was only \$400 million, heart disease research \$700 million, AIDS research \$1.2 billion, childhood immunizations \$1.4 billion, and cancer research \$2

consideration of anticipated land use in the remedial decision making process, improving risk assessment determinations, and application of national standards, are a few of the changes which would go far in improving the efficiency, consistency, and efforts of the Superfund program.

1. *National Standards/Formula Approach.* When enacted in 1980, CERCLA did not address cleanup levels or remedies. While other federal environmental legislation during the 1970s sought to establish national standards for particular media,²⁵⁰ the variety of chemicals associated with Superfund sites presented a complex cleanup problem.

During the 1982 NCP revisions,²⁵¹ EPA had considered establishing national generic cleanup standards but rejected the idea in favor of allowing standards to be set on a site-by-site basis. EPA reasoned it could not set national

billions. See HAZARDOUS WASTE CLEANUP PROJECT, STICKER SHOCK, RECOGNIZING THE FULL COST OF SUPERFUND CLEANUPS 17 (June 1993). However, only four deaths/thousand were attributable to hazardous waste sites while 338/1000 were attributed to tobacco, 297/1000 to high blood pressure, 99/1000 to alcohol, 54/1000 to gaps in primary preventive medical care, 13/1000 to handguns, and 8/1000 to unintended pregnancies. *Id.* at 15.

²⁵⁰ Both the Clean Air Act and Clean Water Act establish national quality standards. See *supra* notes 34, 35.

²⁵¹ National Oil and Hazardous Substances Pollution Contingency Plan, 47 Fed. Reg. 31,180 (1982).

standards because of the varied conditions at CERCLA sites.²⁵² As an alternative, EPA developed the complex and multifarious remedial investigation/feasibility study system, a procedure rife with procedural overkill. Unfortunately, the change ultimately recommended to fix this problem was not much of an improvement - the introduction of ARARs²⁵³ to the remedial process.

EPA's 1985 NCP revisions first advanced the concept of using contaminant standards from other environmental laws when they are "applicable"²⁵⁴ or "relevant and appropriate"²⁵⁵ requirements.²⁵⁶ This policy was subsequently codified in 1986 with passage of section 121 of SARA; which surpassed

²⁵² Stephen Merrill Smith, *CERCLA Compliance With RCRA: The Labyrinth*, 18 ENVTL. L. REP. (ENVTL. L. INST.) 10,518, 10,520 (Dec. 1988).

²⁵³ ARARs is an acronym for Applicable or Relevant and Appropriate Requirements.

²⁵⁴ Applicable requirements are those cleanup standards or requirements promulgated under federal or state law which specifically address a hazardous substance, pollutant, contaminant, remedial action, location at a CERCLA site. 42 U.S.C. § 9621(d) (1988). See 40 C.F.R. § 300.6 (1993).

²⁵⁵ Relevant and appropriate requirements are those that may not be legally applicable but, in the discretion of the decisionmaker, should be used at a CERCLA site. *Id.*

²⁵⁶ Section 300.68(i) of the NCP requires all remedial actions selected for a site to attain or exceed applicable or relevant and appropriate requirements identified for that site. 50 Fed. Reg. 47,912, 47,975 (1985).

NCP standards by requiring cleanup actions comply²⁵⁷ with any promulgated more stringent state requirements, be they chemical-specific, action-specific, or location-specific.²⁵⁸

²⁵⁷ CERCLA section 121(d)(2)(A) states:

With respect to any hazardous substance, pollutant, or contaminant that will remain onsite, if . . . any standard, requirement, criteria, or limitation under any Federal [or more stringent, promulgated state] environmental law, including but not limited to, the Toxic Substances Control Act, the Safe Drinking Water Act, the Clean Air Act, the Clean Water Act, the Marine Protection, Research and Sanctuaries Act, or the Solid Waste Disposal Act . . . is legally applicable to the hazardous substance or pollutant or contaminant concerned or is relevant and appropriate under the circumstances of the release or threatened release of such hazardous substance or pollutant or contaminant, the remedial action selected under section 104 or secured under section 106 shall require, at the completion of the remedial action, a level or standard of control for such hazardous substance or pollutant or contaminant which at least attains such legally applicable or relevant and appropriate standard, requirement, or limitation.

²⁵⁸ The three types of ARARs are: (1) chemical-specific, those which place a health-based or risk-based limit on the amount of a given chemical that can be discharged into, or be present in, the environment. Examples are maximum containment levels (MCLs) and maximum containment level goals (MCLGs) under the Safe Drinking Water Act and federal water quality criteria (FWQC) under the Clean Water Act; (2) action-specific, those which place restrictions on specific types of remedial or waste management activities. An example is RCRA's closure regulations; and (3) location-specific, those which place restrictions against certain types of actions because of the location of the hazardous waste site. Examples are Executive Order 11,988 and Executive Order 11,990 which place limits on federal activities in floodplains and wetlands respectively. Stephen Merrill Smith, *CERCLA Compliance With RCRA: The Labyrinth*, 18 ENVTL. L. REP. (ENVTL. L. INST.) 10,518, 10,524 (Dec. 1988).

Section 121(d) is arguably the most complex and lengthy part of CERCLA and is in the middle of the "how clean is clean" issue. The statutory requirement is that remedial actions must meet all federal standards, requirements, and criteria and any more stringent promulgated state standards, criteria, or limitations that are otherwise relevant and appropriate under the circumstances (ARARs).²⁵⁹ This requirement applies whenever any (emphasis added) hazardous substance, pollutant or contaminant will remain on site.²⁶⁰

State ARARs increasingly affect the remedy selection on federal Superfund and DERP sites. The statute does authorize EPA to waive state ARARs under defined circumstances,²⁶¹ but this waiver authority has rarely been exercised.

²⁵⁹ The types of federal or state requirements subject to this ARARs standard are specified in section 121(d)(2)(A) as follows:

(1) Any standard, requirement, criteria, or limitation under any Federal environmental law, including, but not limited to, the Toxic Substances Control Act, the Safe Drinking Water Act, the Clean Air Act, the Clean Water Act, the Marine Protection, Research and Sanctuaries Act, or the Solid Waste Disposal Act (RCRA); or

(2) any promulgated standard, requirement, criteria, or limitation under a State environmental or facility siting law that is more stringent than any Federal standard, requirement, criteria, or limitation. 42 U.S.C. § 9621(d)(2)(A) (1988).

²⁶⁰ 42 U.S.C. § 9621(d)(2)(A) (1988).

²⁶¹ 42 U.S.C. § 9621(d)(4)(E) (1988).

The major problems with state ARARs are they do not provide clearly articulated goals understood by all the affected parties and do not delineate the respective roles of federal and state agencies. Too much time is spent determining and litigating cleanup levels at every site as well as in selecting and implementing remedies. Finally, the current preference for treatment in the statute usually results in some decisions regarding treatment technologies typically inappropriate and/or ineffective for that site. ARARs negotiations with state agencies usually delay clean up decisions, slow site remediations, and send one federal program in fifty different directions.

Section 121 must be revised to emphasize a CERCLA program with common solutions and similar target risks at comparable sites across the country. I advocate establishment of national risk-based minimum cleanup standards for hazardous waste sites which would apply to all cleanup programs regardless of the specific regulatory scheme governing a particular site. Reliance on state-specific ARARs must be replaced. Local and state ARARs are currently "unregulated" and usually have little or no corresponding correlation to the degree of risk or cost of cleanup. Localities receive the benefits of cleanups, but pay little of the costs, giving them the incentive to increase ARARS beyond cost desirable levels. A national

baseline for remedies would be based on preventing unreasonable risk; which would now be defined as a unit of risk whose prevention or elimination would generate more benefits than costs.²⁶²

Rather than standards based on site-specific assessments made on objective criteria,²⁶³ these standards would be based on preventing unreasonable risk. By establishing consistent national cleanup standards, the current inequality and inconsistency in the array of cleanups nationwide, often providing uncertain, incomplete, and ineffective protection of the environment, would be largely eliminated. The tangible benefits would be calculated on realistic estimates of exposure based on anticipated use rather than worst case scenarios, with states paying for more stringent cleanups. Here is the process:

step 1 - EPA would develop a list of screening levels for a specified list of contaminants. They would be used to evaluate a potential site to determine whether it warrants further attention.

²⁶² Draft Memorandum from the Council of Economic Advisors, CERCLA Reauthorization Cleanup and Liability 3 (Sept. 30, 1993).

²⁶³ See, e.g., ENVIRONMENTAL DEFENSE FUND, TRACKING SUPERFUND (1990).

step 2 - EPA would promulgate generic national cleanup standards tied to characteristics of land use. These national cleanup standards would be used in place of ARARs to accelerate the PA/SI and RI/FS processes. Standards would be established on the basis of existing and reasonably anticipated uses of property and would apply for commercial/industrial uses when there are no residences in the vicinity. The process, however, would recognize that, while a majority of contamination problems are not, some are unique. Therefore, a mechanism would be developed to allow site-specific methods on a case-by-case basis when the generic standards are unable to adequately protect human health and the environment. Mandatory compliance with ARARs would be eliminated and national cleanup standards used in their place. These EPA standards would preempt any other requirements under federal or state law. Use of these uniform cleanup standards, unless officials can identify unique conditions warranting moving above or below them, would simplify the site assessment process by indicating the degree of cleanup necessary before resources are actually expended.

step 3 - A site assessment would be used to determine if screening levels are exceeded. Sites with soil, ground, or surface water and air concentrations below screening levels would be eliminated from further consideration.

step 4 - prioritization. If a site is above screening levels, DoD would perform a site assessment and determine the relative priority of sites eligible for funds. Priority would be based on a given set of criteria. Such criteria could be based on the degree of risk involved, political considerations, or future or anticipated use of the land.

step 5 - determine land use needs. Local site advisory boards or community working groups²⁶⁴ would be used to enhance community participation with the goal of involving all stakeholders, i.e. a cross-section of the community (residents, business owners, planning boards, elected officials, etc.). These site advisory boards would be asked to identify future land uses of a site -- whether they be residential or "restricted" -- as early as possible in the cleanup process (ideally before the remedial investigation has begun). Restricted uses would include limiting the site to such future activities as industrial, commercial, recreational, agricultural, and park land. Use determinations would chart the general direction of response efforts and would be incorporated into an enforceable legal

²⁶⁴ See NATIONAL COMMISSION ON SUPERFUND, FINAL CONSENSUS REPORT OF THE NATIONAL COMMISSION ON SUPERFUND (PRE-PUBLICATION DRAFT) 39 (Dec. 21, 1993). The Clinton Administration has proposed Community Working Groups be established to provide for direct and meaningful community involvement in each significant phase of response activities under CERCLA. Superfund Reform Act of 1994, S. 1834, 103d Cong., 1st Sess. § 103.

mechanism such as a deed restriction or a covenant. These deed restrictions and covenants would restrict future use of the land to those planned or negotiated during the cleanup. Incorporation of such restrictions in the chain of title is the key to at least alerting potential purchasers of the degree of cleanup to be required at a particular site. The ultimate goal, of course, would be to return the property to at least a productive, albeit incomplete, use as soon as possible while at the same time protecting future purchasers of the land from potential liability for the costs associated with cleanup of hazardous waste.

Step 6 - Apply national cleanup standards and presumptive remedies developed under step 2.

Step 7 - verify implementability and ability to effectively monitor remedy. Remedies would have to achieve base-line health/environmental objectives, but those performing the remedy would retain the flexibility to choose specific remedial techniques. This should increase the potential for innovative, creative and cost-minimizing techniques. To determine if the treatment is even feasible, DoD would look to how long the technology would take to reach the goal considering the nature of the risks involved to the community, future and anticipated land uses, and reasonable cost. If the technology is not feasible,

interim/long term containment would be begun, minimizing to the maximum extent possible the migration of contaminants into the air, water, soil, and ground water at a given concentration level. Use of the land under a contaminant would be authorized only if the site could be utilized for restricted purposes, such as an industrial facility, garbage dump or parking garage, and not for a residential community, school or recreation facility. DoD would monitor and review the site every 5-10 years.

Step 8 - cost-benefit analysis. The lowest cost remedy protective of human health and the environment for the intended or anticipated use of the land would be chosen.

2. *Land Use.* The current remedial process utilizes the Hazard Ranking System (HRS)²⁶⁵ to determine inclusion on the NPL. Land use is not explicitly factored into, and no such expectation is considered, in determining remedy selection. CERCLA does not explicitly address the issue of land use and the NCP only addresses land use in general terms in the preamble. Site specific decisions are now carried out using threshold, balancing and modifying criteria based on statutory mandates requiring remedies to be protective of human health and the environment, to satisfy ARARs, to use permanent solutions to the maximum extent possible, and be

²⁶⁵ *Supra* note 73.

cost effective.

Compliance with ARARs has thus become an end in and of itself, even where such efforts involve extraordinary additional costs with no corresponding environmental benefit.²⁶⁶ However, as land use affects the types and frequency of exposure likely to occur, CERCLA must at least acknowledge the importance land use plays in the remedy selection process.

CERCLA's requirement to select ". . . a remedial action that is protective of human health and the environment, that is cost effective, and that utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable,"²⁶⁷ has driven remedy selection towards more permanent remedies and has implicitly led to the selection of remedies allowing unrestricted land use as a general goal. However it is apparent the statutory language does not specify the type of

²⁶⁶ As an example, an NPL installation in Tennessee may have groundwater contaminated with mercury, a contaminant often found at Superfund sites. Under the Safe Drinking Water Act, there is a federal standard for the maximum allowable amount of mercury in drinking water of 2 parts per billion. This standard can be automatically adopted by EPA as an ARAR that must be achieved in the cleanup of the site, even if the groundwater can not nor will not ever be used for drinking water. See HAZARDOUS WASTE CLEANUP PROJECT, TECHNOLOGICAL REALITY, THE LIMITS OF TECHNOLOGY IN DEALING WITH HAZARDOUS WASTE CLEANUP SITES 4 (June 1993).

²⁶⁷ 42 U.S.C. § 9621(b) (1988).

land use considered and, consequently, the level of cleanliness or protection which must be provided. Rather, CERCLA allows EPA to establish a process for deciding the appropriate point on the land use continuum for each site and the NCP is EPA's shaky framework intended to implement the statute.

It is land use which must drive risk assessment and cleanup standards must be shaped to match intended use. The anticipated or intended use of a site must control the decisions for selection of a remedy. Rather than play little or no role, assumptions about future use must dominate risk assessment and cleanup target determinations. Regulators, however, currently take the approach of selecting a site use which will result in the highest possible exposure, usually residential land use. This approach has even been taken to the extreme of requiring remediation of a landfill to a level which would allow the site to be being capable of supporting residential land use at any time. Such an approach is unreasonable. Even if one were able to clean a site to a zero contamination level, a sanitary landfill should never be considered a reasonable location for residential development.

Future land use must play a critical role in the remedy

selection decision making process at military facilities.²⁶⁸ All the stake holders -- local communities, the land owner, environmental regulators, and DoD -- have a role in determining future use. Limiting future land use can expedite the cleanup process. Involvement of the stakeholders, particularly local communities, in this determination may also bring practical solutions rather than simply satisfying whatever regulatory demands generate the worst-case exposures. The current worst case approach may be placing a far greater cost on society and take longer than is necessary.

The current criteria for selecting cleanup alternatives under section 121 do not include anticipated property use as a factor. While anticipated property use can be considered as part of the risk assessment and cost effectiveness analysis, EPA has generally presumed residential property use when performing such risk analysis. This has lead to more costly cleanups, especially for contaminated industrial property where the expected use will likely remain industrial and institutional controls can be implemented to ensure such use continues. It has also impeded returning contaminated property to viable economic reuse.

²⁶⁸ The Clinton Administration has proposed reasonably anticipated future uses of land at a facility be taken into account when selecting a remedy. Superfund Reform Act of 1994, S. 1834, 103d Cong., 1st Sess. § 503.

The benefits of considering anticipated property use in remedy selection process would include:

(a) *Clean Sites More Quickly.* Selecting cleanup remedies based on anticipated property use will result in less complicated cleanup actions saving both money and time and allow contaminated property to be returned more quickly to viable economic use.

(b) *Modify Polluter's Behavior.* Less costly cleanups at industrial sites will decrease the polluters potential liability and, thus, be less a deterrent than the existing process. Because CERCLA is a civil liability statute, costs should not artificially be increased solely to deter behavior (criminal goal) if a less costly remedy based on anticipated property reuse is sufficient to protect human health and the environment.

(c) *Fairness.* Creating a mechanism to allow less stringent cleanups at industrial versus residential sites, given that industry is the source of most pollution, is not unfair as the less stringent standard is not being applied to a class of polluters (industry) but to a location (industrial sites). Non-industrial sites will remain subject to more stringent cleanup standards and industries which are responsible will incur the more stringent cleanup

costs.

(d) *Polluter Still Pays*. Cleanup standards based on anticipated use is not a CERCLA exemption. Those responsible will remain liable for cleanup costs.

However, future land use discussions must begin early in the response process if they are to have a positive impact.

3. *Improving Risk Assessment and Risk Management Models*. CERCLA requires EPA to include in the National Contingency Plan methods for evaluating the extent to which a hazardous release poses a health or an environmental risk.²⁶⁹ CERCLA further requires remedial actions be selected that are protective of human health and the environment, which attain ARARs compliance, and which are cost-effective.²⁷⁰ The NCP requires preparation of a baseline risk assessment to characterize the health and environmental threat to be remediated. This assessment is used to establish remediation goals and remedial action alternatives.²⁷¹

²⁶⁹ 42 U.S.C. § 9605(a) (1988).

²⁷⁰ 42 U.S.C. §§ 9621(a)-(e) (1988).

²⁷¹ 40 C.F.R. § 300.430(d)(4) (1993).

Risk assessment is performed at each NPL site to ensure EPA selects a remedial action protective of human health and environment.²⁷² The risk assessment is described as follows:

[T]he lead agency shall conduct a site-specific baseline risk assessment to characterize the current and potential threats to human health and the environment that may be posed by contaminants migrating to groundwater or surface water, releasing into air, leaching through soil, remaining in the soil, and bio-accumulating in the food chain.²⁷³

In more basic terms, the assessment of the risk at any site involves: (1) determining the toxicity of the chemicals at the site, then (2) determining the extent to which people (or the environment) are exposed to the chemicals from the site, and then (3) combining these results into a numerical estimate of the risks posed by those chemicals at the site.²⁷⁴ EPA's exposure assessments, however, are currently based on unreasonable assumptions and worst-case scenarios rather than in evaluating the actual risk to a particular

²⁷² 42 U.S.C. § 9621(b) (1988); 40 C.F.R. § 300.430(d)(1) (1993).

²⁷³ 40 C.F.R. § 300.430(d)(4) (1993).

²⁷⁴ HAZARDOUS WASTE CLEANUP PROJECT, EXAGGERATING RISK: HOW EPA'S RISK ASSESSMENTS DISTORT THE FACTS AT SUPERFUND SITES THROUGHOUT THE UNITED STATES 9 (June 1993).

site. EPA assumes a site will ultimately be used as a residential area, thus applying its highest possible exposure assumptions, even if the site is in a highly industrialized area unlikely to ever see residential development.

In addition, although the public perceives them as a major health risk, hazardous waste sites actually present relatively moderate to low risk compared to many other environmental and public health problems.²⁷⁵ In fact, the mere presence of a substance is now often equated to exposure - without consideration of whether or not there is actual exposure or a reasonable likelihood of exposure.²⁷⁶ Further, EPA uses "continuous contact" assumptions instead of actual human activity patterns that exaggerate risk by presuming contact.

As an example, some people surrounding the Milan Army Ammunition Plant NPL site may actually drink 2 liters (approximately 1 gallon) of water a day as EPA assumes. However, they probably will not get all their water intake from a contaminated source, also as EPA assumes.²⁷⁷ It is

²⁷⁵ U.S. ENVIRONMENTAL PROTECTION AGENCY, UNFINISHED BUSINESS: A COMPARATIVE ASSESSMENT OF ENVIRONMENTAL PROBLEMS (Feb. 1987) cited in EXAGGERATING RISK, *supra* note 274, at 11-12.

²⁷⁶ *Id.* at 12.

²⁷⁷ *Id.* at 14.

also possible that an eight-year-old child may actually scale a security fence, skirt patrols and end up digging a hole three feet deep in order to play in the most contaminated spot at the Rocky Mountain Arsenal NPL site. However, they probably won't do it 365 days per year, as specified in EPA's Standard Default Exposure Factors.²⁷⁸

The NCP establishes a requirement that the baseline risk assessment be conducted at every site to characterize current and potential threats. If cleanup is required, EPA determines reasonable objectives and develops several alternatives using nine separate criteria; but which must at least satisfy the criteria of protectiveness and ARARs satisfaction. Under the current statute, the goal of site cleanup is determined by balancing permanence and treatment with cost-effectiveness (not cost-benefit). These risk assessments distort the facts at Superfund sites throughout the United States.²⁷⁹ While scientifically objective assessments, that neither overstate nor understate actual risk, should be a central element in cleanup decisions, EPA's reliance on unwarranted assumptions instead of site-specific data and use of theoretical worst case value is, at

²⁷⁸ Environmental Protection Agency Memorandum from Timothy Fields, Jr. & Bruce Diamond, Supplemental Guidance: Standard Default Exposure Factors, (March 25, 1991), cited in EXAGGERATING RISK, *supra* note 274, at 14.

²⁷⁹ EXAGGERATING RISK, *supra* note 274, at 1.

best, misguided and should be eliminated.²⁸⁰

While risk assessments do estimate the magnitude of the risk, the problem is they make no judgement concerning the acceptability of that risk. What is needed is to use risk assessment as a foundation for making value judgments about whether the risks are acceptable and, if not, how to manage and reduce such risk.²⁸¹ The determination of whether, or to what extent, to remediate a hazardous release is now largely based on human health and environmental protectiveness without formal regard to the cost of such remediation. The process must be changed to eliminate the current exaggeration of risk and provide more accurate estimates of actual risks posed by the military's hazardous waste sites.

The benefits of such a change should seem evident. Remedies would now be calculated and based on realistic estimates of exposure. They would involve realistic depictions of land use of the site and adjacent property, as well as assessing realistic human exposure. Thus, different cleanup remedies would be implicated for different land uses (industrial, residential) and population densities. Risk assessments would be based on likely human exposure rather than worst case scenarios or hypothetical maximum exposure

²⁸⁰ *Id.*

²⁸¹ *Id.* at 4-5.

assumptions.

Measuring benefits in this way would also help calibrate cleanup costs more closely to real health benefits, avoid extravagant cleanups of properties posing little likelihood of human exposure, and conserve resources for the cleanup of sites truly raising health concerns. Benefits would be measured not on technology/design (input) criteria but on performance (output) terms. It would reward innovative, creative, forward thinking approaches. PRPs would still be required to achieve objective standards but would be able to choose remedy techniques which are the most cost effective.

Lastly, the Superfund process should strengthen the cost-effectiveness requirement for remedy selection by using health and environmental criteria to decide on the extent of cleanup (otherwise know as risk reduction). Then, the lowest cost alternative available to reliably provide the desired level of cleanup should be selected.²⁸² This option

²⁸² The method of setting cleanup objectives first then determining the cost-effective remedy has been expressed by Congress: "The term 'cost effective' means that in determining the appropriate level of cleanup the President first determines the appropriate level of environmental and health protection to be achieved and then selects a cost-effective means of achieving that goal." H.R. CONF. REP. NO. 2005, 99th Cong., 2d Sess. 245 (1986). In the debate, Senator Mitchell said "an analysis of cost effectiveness begins only after a remedial action has been selected in compliance with the health and environmental protection

would require reexamination of the remedy selection process, which currently uses the nine criteria;²⁸³ one of which is cost, not cost effectiveness. The current nine criteria should be reduced to just two. After cleanup objectives are determined: 1) DoD would analyze each alternative for its ability to meet objectives, and then (2) would estimate the full cost for each cleanup alternative but select the lowest cost alternative able to meet the objectives.

4. *Presumptive Remedies.* EPA studies show that, despite an intensive site-specific effort, the same types of remedies tend to be selected for certain categories of sites. Repetition of activities is unnecessary. Presumptive remedies would capitalize on patterns in selection of remedy decisions for specific types of sites. In this way, those who deal with similar sites in the future can better focus data collection efforts and spend time on remedial options holding the greatest likelihood of success.

requirements, permanent treatment requirements, and other standards, requirements, criteria or limitations imposed by law." 132 CONG. REC. S14,913 (daily ed. Oct. 3, 1986) (statement of Sen. Mitchell).

²⁸³ The other eight are: overall protection of human health and the environment; compliance with applicable or relevant and appropriate requirements of other statutes (ARARs); long-term effectiveness; reduction of toxicity, mobility or volume; short-term effectiveness; implementability; State acceptance; and community acceptance. 40 C.F.R. § 300.430(e)(9)(iii) (1993).

The remedial process should use presumptive remedies to the extent consistent with Superfund cleanup goals. As experience demonstrates a particular remedy is effective for a given site, EPA should establish the remedy is presumed to be the most appropriate remedy at similar sites. Thereafter, only if an agency makes an affirmative determination no presumptive remedy exists at a site could it go to the next step - site assessment and development of a remedial action plan.²⁸⁴

5. *Summary.* Enough information about the protection of human health and the environment has been gained through previous state and federal cleanup programs to establish uniform cleanup standards - or at least a uniform process for setting cleanup levels - that would provide appropriate levels of protection at most sites. Statutory ARARS methodologies should be eliminated and replaced with a mandate for EPA to develop national soil and groundwater cleanup standards.²⁸⁵ Instead of treating every site as a

²⁸⁴ In order to streamline the remedy selection process, the Clinton Administration has proposed establishing generic remedies for categories of facilities which could thereafter be selected without considering alternative remedies. Superfund Reform Act of 1994, S. 1834, 103d Cong., 1st Sess. § 503.

²⁸⁵ The Clinton Administration has proposed promulgating appropriate, national generic cleanup levels for specific hazardous substances, pollutants, and contaminants which will be protective of the human health and environment. See Superfund Reform Act of 1994, S. 1834, 103d Cong., 1st. Sess. § 502.

"black box" where no assumptions are possible, uniform health-based concentration standards should be used in place of site-specific levels based on risk, unless officials can identify some unique conditions warranting deviation from the standard.

Establishment of uniform national health-based concentration standards would result in streamlining the Superfund process at DoD installations. First, it would simplify the site assessment process by indicating when a cleanup was necessary. With established standards, this decision would be made quicker and more consistently, reducing the amount of data needed to be collected and analyzed. This approach would also allow for a focus on the appropriate remedial technology, thereby facilitating the review of feasible alternatives. Finally, establishment of uniform national cleanup standards would simplify the remedy selection process by indicating what level of cleanup was actually necessary. With national risk-based cleanup standards, DoD could ensure rational cleanups at each military site while ensuring risks to individuals are considered equally across the board.

Risk assessments must rely on the most likely estimates of exposure - not on worst case scenarios or hypothetical values. Measuring benefits in this way would ensure cleanup

costs are commensurate with actual environmental problems, conserving scarce resources for those sites truly posing significant environmental threats to human health and the environment.

Finally, remedial goals at DoD sites must be measured in terms of performance, not technology requirements. Once objectives are selected, those actually performing the remedial activity should have flexibility to achieve cost-effectiveness. Performance based standards, in contrast to technology based standards, would encourage innovation and creativity in the remedial process.

B. STATE-FEDERAL AUTHORITY DISPUTES: RECOMMENDATIONS TO CLARIFY THE STATE'S ROLE

[I] challenge you [the proponents of Superfund] to present information showing why this problem, [cleanup of nation's hazardous waste problem] of all the problems we face in this country today, could not be handled by the states if we gave them some encouragement. [The Congress and the EPA] cannot do everything.²⁸⁶

²⁸⁶ 126 CONG. REC. 26,765 (1980) (statement of Rep. Stockman opposing creation of Superfund).

Currently, a DoD hazardous waste site may be subject to either CERCLA or RCRA, or both.²⁸⁷ At the root of the difficulties plaguing many military sites and DoD's cleanup process is the inherent difficulty in reconciling RCRA and CERCLA.²⁸⁸ Specifically, what is the authority of states to control cleanups at DoD sites listed on the NPL and whether, and to what extent, should CERCLA authority be delegated to the states?

It used to be difficult to define the appropriate balance of responsibility between the Department of Defense and the states for cleanup of serious hazardous waste sites. Does CERCLA suspend independent state authority to enforce RCRA at DoD sites selected for remedial action? Is a state prohibited from enforcing its own remedial standards when they differ from those selected by the federal government? Apparently, the answers to these questions are now no.

As a result of a recent Tenth Circuit Court of Appeals

²⁸⁷ See, e.g., Hilary Noskin et al., *When Does RCRA Apply to a CERCLA Site?*, 3 FED. FAC. ENVTL. J. 173 (1992).

²⁸⁸ See Margaret Strand, *Federal-State Authority Disputes at Federal Facility Sites: A Study in Legislative Failure*, 4 FED. FAC. ENVTL. J. 10 (1993). The fundamental difference between CERCLA and RCRA is that CERCLA is designed to target and fund the cleanup of areas that are already contaminated, whereas RCRA is better viewed as a regulatory mechanism to avoid creating the same kinds of problems in the future. Major William D. Turkla, *Determining Cleanup Standards for Hazardous Waste Sites*, 135 MIL. L. REV. 167, 170 (1992).

case²⁸⁹ involving the State of Colorado and the U.S. Army's Rocky Mountain Arsenal,²⁹⁰ states may now enforce RCRA requirements at DoD facilities during Superfund remediations. In *United States v. Colorado*, the court ruled the State of Colorado already "has the authority to enforce [RCRA] at the Arsenal, and '[a]ny action taken by [Colorado] . . . [has] the same force and effect as action taken by the

²⁸⁹ *United States v. Colorado*, 990 F.2d 1565 (10th Cir. 1993), cert. denied, 127 L. Ed. 2d 216 (1994).

²⁹⁰ See Vicky L. Peters et al., *Can States Enforce RCRA at Superfund Sites? The Rocky Mountain Arsenal Decision*, 23 ENVTL. L. REP. (ENVTL. L. INST.) 10,419 (July 1993) (providing an excellent historical background of and the environmental problems facing the Arsenal, particularly the focus of the present litigation, the 92.7 acre Basin F and its millions of gallons of contaminated liquids). Rocky Mountain Arsenal (RMA) has been called "one of the worst hazardous waste pollution sites in the country." *Daigle v. Shell Oil Co.*, 972 F.2d 1527, 1531 (10th Cir. 1992) (footnote omitted). Basin F, a phosphorescent toxic lake "glow[ing] ominously beneath the majestic Rocky Mountains, [is] the centerpiece of a forsaken track of land some believe to be the earth's most toxic square mile." SETH SHULMAN, *THE THREAT AT HOME: CONFRONTING THE TOXIC LEGACY OF THE U.S. MILITARY* xi (1992). However, in a remarkable attempt to shift the focus away from the negative connotations currently associated with Basin F and RMA, the Army succeeded in getting Congress to pass the Rocky Mountain Arsenal National Wildlife Refuge Act of 1992, Pub. L. No. 101-402, 106 Stat. 1961. The Act will ultimately convert the RMA into one of the largest urban national wildlife refuges in the United States. Once the Army's remediation process is complete, the Department of the Interior's Fish and Wildlife Service will assume responsibility for RMA and convert it into a national wildlife refuge. The significance of converting a national disaster into a national treasure is not lost on this author. In fact, President Bush "applauded this approach to resolving the nation's environmental problems" and demonstrates that, "when we focus on opportunities rather than problems, we can match the resilience of nature with human ingenuity." See President's Statement Upon Signing H.R. 1435, 28 WEEKLY COMP. PRES. DOC. 1889 (Oct. 12, 1992).

[EPA]²⁹¹ State hazardous waste laws are now enforceable under RCRA at federal facilities even if the facility is on the NPL and even if a remedial investigation/feasibility study (RI/FS) has begun.²⁹² The ramifications of this decision are far-reaching.

1. *The Litigation.* During the 1980s, the State of Colorado, through the Colorado Department of Health (CDH), issued several deficiency notices to the Army directing it to prepare a closure plan for Basin F at the Rocky Mountain Arsenal.²⁹³ The Army refused to comply asserting that since its CERCLA response action was initiated in 1984, Colorado was precluded from enforcing its RCRA authority²⁹⁴ at the site.

In response to the Army's intention not to implement the closure plan, Colorado filed suit in state court in November 1986 seeking injunctive relief to halt the Army's violations of the Colorado Hazardous Waste Management Act

²⁹¹ 990 F.2d at 1576 (citing 42 U.S.C. § 6926(d) (1988)).

²⁹² John F. Seymour, *Tenth Circuit Rules That State May Enforce RCRA Requirements During Federal Facility Cleanups*, 4 FED. FAC. ENVTL. J. 245 (1993).

²⁹³ 990 F.2d at 1571.

²⁹⁴ Pursuant to 42 U.S.C. § 6926(b) (1988), the EPA had authorized the State of Colorado to carry out its Colorado Hazardous Waste Management Act in lieu of RCRA in November 1984. 49 Fed. Reg. 41,036 (1984).

(CHWMA) and to enforce the closure plan for Basin F.²⁹⁵ The Army removed the case to federal district court and moved to dismiss the enforcement action arguing "CERCLA's enforcement and response provisions pre-empt and preclude a state RCRA enforcement action with respect to the cleanup of hazardous waste at the Arsenal."²⁹⁶

In February 1989, the United States District Court for the District of Colorado denied the government's motion relying on the fact the site was not on the NPL and CERCLA section 120(a)(4) provides for the application of state law concerning removal and remedial action on federal facilities not listed on the NPL.²⁹⁷ Consequently, CDH was not precluded from enforcing the CHWMA pursuant to its EPA delegated RCRA authority, despite the Army's ongoing cleanup efforts under CERCLA.²⁹⁸

Basin F was subsequently added to the NPL less than one month after the decision and, in March 1989, the Army moved

²⁹⁵ 990 F.2d at 1572.

²⁹⁶ Colorado v. United States Dep't. of the Army, 707 F. Supp. 1562, 1565 (D. Colo. 1989).

²⁹⁷ 990 F.2d at 1572-3.

²⁹⁸ 707 F. Supp. at 1570.

for reconsideration of the District Court's order.²⁹⁹ In August 1991, the District Court ruled Colorado did not, in fact, have the right to enforce RCRA at Basin F, accepting the Army's argument that CERCLA section 113(h)³⁰⁰ barred enforcement of a CDH enforcement order as a challenge to a CERCLA response action.³⁰¹ The court enjoined Colorado from taking any action to enforce the CHWMA at Basin F.

On appeal, the United States Court of Appeals for the Tenth Circuit reversed, ruling that RCRA and CERCLA can be harmonized and, read together, reflect Congress' intent to permit states to enforce their hazardous waste laws at federal facilities, notwithstanding the pendency of a Superfund remediation.³⁰²

²⁹⁹ 990 F.2d at 1573 n.14. Although the EPA had listed most of Rocky Mountain Arsenal on the NPL, they had failed to include Basin F because of uncertainty regarding the RCRA status of that unit. See 52 Fed. Reg. 27,260, 26,641 (1987). EPA quickly resolved their uncertainty and proposed to add Basin F to the Rocky Mountain Arsenal listing. See 52 Fed. Reg. 27,643, 27,646 (1987). This expansion of the listing did not become final until March 1989. See 54 Fed. Reg. 10,512, 10,515-16 n.12 (1989). It was the Army which thereafter sought reconsideration of the District Court's decision.

³⁰⁰ CERCLA section 113(h) states: "No Federal court shall have jurisdiction under Federal law . . . to review any challenges to removal or remedial action selected under section 9604, or to review any order issued under 9606(a)." 42 U.S.C. § 9613(h) (1988).

³⁰¹ John F. Seymour, *Tenth Circuit Rules That States May Enforce RCRA Requirements During Federal Facility Cleanups*, 4 FED. FAC. ENVTL. J. 245, 246 (1993).

³⁰² *Id.* at 247.

The court rejected the Army's argument that simply listing the Arsenal on the NPL precluded application of state law to that site under section 120(a)(4).³⁰³ The court reasoned that to do so would be inconsistent with section 120(i), which expressly reserves the obligation of federal facilities to comply with RCRA requirements.³⁰⁴ The court believed "that had Congress intended [section 120(a)(4)] to exclude states from enforcing their EPA-delegated RCRA responsibilities, it would have expressly said so;"³⁰⁵ to believe otherwise would be contrary to section 120(i). "Placement on a national priority list simply has no bearing on a federal facility's obligation to comply with state hazardous waste laws which have been authorized by an EPA delegation of RCRA authority or a state's ability to enforce such laws."³⁰⁶

³⁰³ Section 120(a)(4) states: "State laws concerning removal and remedial action, including State laws regarding enforcement, shall apply to removal and remedial action at facilities owned or operated by a department, agency, or instrumentality of the United States when such facilities are *not included on the National Priorities List*." 42 U.S.C. § 9620(a)(4) (1988) (emphasis added).

³⁰⁴ Nothing "affects or impairs the federal government's obligation to comply with any RCRA requirements," including corrective action requirements. 42 U.S.C. § 9620(i) (1988).

³⁰⁵ *United States v. Colorado*, 990 F.2d 1565, 1580 (10th Cir. 1993), cert. denied, 127 L. Ed. 2d 216 (1994).

³⁰⁶ The court noted listing a site on the NPL had no real regulatory significance, indicating that the NPL was nothing more than a listing of priority releases for long term remediation serving primarily for informational purposes. 990 F.2d at 1580.

Lastly, the court dismissed the Army's argument that the CERCLA remedy selection process defined and limited the role of the states at NPL sites.³⁰⁷ Although it did acknowledge the ARARs provision was intended to provide "a mechanism for state involvement in the selection and adoption of remedial actions which are federal in character,"³⁰⁸ the court could find nothing to support the contention that Congress "intended the ARARs provision to be the exclusive means of state involvement in hazardous waste cleanup . . . when the ARARs concept did not even come into being until six years after CERCLA was enacted."³⁰⁹ The United States Supreme Court denied the Army's petition for certiorari on January 24, 1994.³¹⁰

2. *The Effect.* As the ruling now empowers states with the authority to force federal agencies to comply with RCRA requirements at NPL sites to the same extent as other PRPs, the primary effect of the decision will be to reduce DoD

³⁰⁷ The Army had posited the argument that § 9621(d), which grants the President the authority to select a remedial action and allows state input into that decision through the ARARs process, is the exclusive method by which a state can participate in the remedial process at a CERCLA site.

³⁰⁸ 990 F.2d at 1581, quoting *Colorado v. Idarado Mining Co.*, 916 F.2d 1486, 1495 (10th Cir. 1990), *cert. denied*, 111 S. Ct. 158 (1991).

³⁰⁹ 990 F.2d at 1581.

³¹⁰ *United States v. Colorado*, 990 F.2d 1565 (10th Cir. 1993), *cert. denied*, 127 L. Ed. 2d 216 (1994).

flexibility in the CERCLA remediation process. Prior to the decision, state involvement at NPL sites was governed by the nonbinding ARARs process. Now, however, it is likely DoD will be unable to waive compliance with federally delegated RCRA state hazardous waste laws under any circumstance, even when a proposed action is cost prohibitive and applied in a discriminatory manner, absent perhaps a complete conflict with CERCLA. States may now be able to insist on DoD sites attaining extremely strict standards even if achieving such standards exhausts agency appropriations.³¹¹ In addition, states may now be theoretically able to insist on more stringent cleanup standards at DoD sites while adopting more lenient standards at other sites.³¹²

3. *The Future.* Arguments made during the ratification of the U.S. Constitution reveal the framer's understanding of state autonomy.³¹³ James Wilson told the Pennsylvania ratifying convention that "[w]hatever object of government is confined in its operations and effect, within the bounds of a particular state, should be considered as belonging to

³¹¹ See John F. Seymour, *Tenth Circuit Rules That States May Enforce RCRA Requirements During Federal Facility Cleanups*, 4 FED. FAC. ENVTL. J. 245, 253 (1993).

³¹² *Id.*

³¹³ See James P. Young, *Expanding State Initiation and Enforcement Under Superfund*, 57 U. CHI. L. REV. 985, 996 (1990).

the government of that state."³¹⁴ In essence, matters whose effects tend not to cross state boundaries should be considered primarily state matters.³¹⁵

Such should be the case with Superfund. Although hazardous waste is a "nationwide" problem in the sense every state contains hazardous waste sites, it is not nationwide in the sense usually associated with environmental harms. That is, hazardous waste is not a problem routinely transcending the boundaries of a single state.³¹⁶

Under the current statutory, regulatory, and judicial structure established by CERCLA and RCRA, cleanup provisions of both may apply at the same DoD facility. A problem occurs because nearly all military installations generate, store, or dispose of hazardous waste to some degree and are thus potentially subject to RCRA cleanup requirements. At the same time, these installations also contain inactive waste sites potentially subject to CERCLA. Even if an installation is not currently RCRA-regulated, it is possible RCRA may still apply where a CERCLA cleanup action involving hazardous waste treatment or storage on the installation is

³¹⁴ 2 JONATHAN ELLIOT, DEBATES IN THE SEVERAL STATE CONVENTIONS ON THE ADOPTION OF THE CONSTITUTION 424 (1836), *quoted in* RAOUL BERGER, FEDERALISM: THE FOUNDERS DESIGN 71 (1987).

³¹⁵ See Young, *supra* note 313, at 996.

³¹⁶ *Id.* at 985.

implemented.

Because EPA has historically declined to delegate to states the power to select CERCLA remedies for hazardous waste sites,³¹⁷ these overlapping statutory authorities have invariably led to overlapping regulatory authorities and different response procedures at the same installation. This overlap has created conflict between the states, EPA, and DoD over their respective roles in the cleanup process.³¹⁸ The immediate result has been a tendency to keep studying sites and instigating multiple reviews and paperwork requirements. This has led to institutional conflict between EPA, the state, and DoD, involving disagreement over remedy selection, and a tendency to "shop" for the authority allowing the most flexibility, in the case of the facility, or for the most enforcement options, in the case of the regulator. The end results have been increased costs and delays in the timely cleanup of military

³¹⁷ 55 Fed. Reg. 8783 (1990). EPA did not want the states to have the ability to commit Superfund money without some federal oversight.

³¹⁸ Inter-agency agreements were intended to be the administrative mechanism designed to reduce delay and confusion resulting from multiple agencies having a role in cleanup decisions. IAGs, however, only apply to NPL sites (approximately 6 percent of the total number of sites). In addition, IAGs have not completely resolved RCRA/CERCLA authority and overlap problems at installations where they have been developed. This is because states are not required to sign these agreements; and states often reserve their rights even when they do sign.

installations.

While CERCLA's displacement at DoD facilities as a result of the *Colorado* decision may cause some friction between state and federal governments, the last thirteen years have, in fact, been marked by an increased willingness on the part of EPA to expand state involvement in the cleanup process.³¹⁹ The NCP is already intended to establish a partnership between the federal and state governments.³²⁰ Some states are able now, in fact, to perform adequate cleanups despite a persistent perception of inability within the federal government.³²¹ Many have their own state Superfund or Superfund-like laws on the books.³²²

³¹⁹ Lawrence E. Starfield, *The 1990 National Contingency Plan--More Detail and More Structure, But Still a Balancing Act*, 20 ENVTL. L. REP. (ENVTL. L. INST.) 10,222, 10,242 (1990).

³²⁰ James P. Young, *Expanding State Initiation and Enforcement Under Superfund*, 57 U. CHI. L. REV. 985, 995 (1990).

³²¹ Twenty-seven states with cleanup funds and enforcement authorities are conducting programs for removal and remedial actions at non-NPL sites. Fourteen additional states have the legal capability to conduct public or responsible party led cleanups at non-NPL sites but have limited cleanup activities at the present (typically due to a low fund balance or inadequate staffing levels). Of the remaining nine states, some lack enforcement authorities, others have funds only for NPL CERCLA match requirements, and others lack a program. However, Nebraska is the only state without a cleanup fund of any kind. See U.S. ENVIRONMENTAL PROTECTION AGENCY, AN ANALYSIS OF STATE SUPERFUND PROGRAMS (EPA/540/8-91/002) 6 (Sept. 1990).

³²² ALA. CODE §§ 22-30A-1 to -11 (1990); ALASKA STAT. §§ 46.08.005-.900 (1991); ARIZ. REV. STAT. ANN. §§ 49-901 to -944 (1988 & Supp. 1993); ARK. CODE ANN. §§ 8-7-501 to -522

In addition, although EPA itself identifies, investigates, analyzes, and cleans a hazardous waste site in

(Michie 1991 & Supp. 1993); CAL. HEALTH & SAFETY CODE §§ 25300-386.6 (West 1992 & Supp. 1994); COLO. REV. STAT ANN. §§ 25-16-101 to -104.7, 29-22-101 (West 1989); CONN. GEN. STAT. ANN. §§ 22a-114 to -133 (West 1985 & Supp. 1993); DEL. CODE ANN. tit. 7 § 6308-319 (1991); D.C. CODE ANN. § 6-731 to -738 (Supp. 1993); FLA. STAT. ch. 403.141, 403.161, 403.703, 403.725, and 403.726 (1990 & Supp. 1992); GA. CODE ANN. §§ 12-8-60 to 12-8-97 (Michie 1992 & Supp. 1993); HAW. REV. STAT. § 340J (Supp. 1992); IDAHO CODE § 39.7101-.7115 (1993); ILL. ANN. STAT. ch. 415 para. 5/22.2 (Smith-Hurd 1992 & Supp. 1993); IND. CODE ANN. §§ 13-7-8.6-1 to -15 (Burns 1990 & Supp. 1993); IOWA CODE ANN. §§ 455B.423 (West 1990 & Supp. 1993); KAN. STAT. ANN. §§ 65-3430 to -490 (1992); KY. REV. STAT. ANN. §§ 224.01-200 to -215 (Michie/Bobbs-Merrill 1991); LA. REV. STAT. ANN. §§ 30:2202-07, §§ 30:2221-26, §§ 30:2271-81 (West 1989 & Supp. 1993); ME. REV. STAT. ANN. tit. 38, §§ 1319-B to -I (West 1989 & Supp. 1993); MD. CODE ANN., ENVIR. §§ 7-218 to -221 (1984 & Supp. 1993); MASS. GEN. LAWS ANN. ch. 21E §§ 1-18 (West 1993); MICH. COMP. LAWS ANN. §§ 299.501-.551 (West 1993); MINN. STAT. ANN. §§ 115B.01-.37 (West 1987 & Supp. 1994); MISS. CODE ANN. §§ 17-17-15 to -55 (Supp. 1993); MO. ANN. STAT. §§ 260.350, 260.435, 260.500 (Vernon 1990 & Supp. 1993); MONT. CODE ANN. §§ 75-10-701 to -724 (1992); NEV. REV. STAT. ANN. §§ 459.400-.600 (Michie 1991); N.H. REV. STAT. ANN. §§ 147-B (1990); N.J. STAT. ANN. §§ 58:10-23.11 to -.24 (West 1992 & Supp. 1993); N.M. STAT. ANN. §§ 74-4-4.5, 74-4-8 (Michie 1993); N.Y. STATE FIN. LAW § 97-12b, N.Y. ENVTL. CONSERV. LAW §§ 27-0900 to -0923, 27-1301 to -1321, 71-2723, 71-2725, N.Y. PUB. HEALTH LAW §§ 1389-a to -d (McKinney 1990 & Supp. 1994); N.C. GEN. STAT. § 130A-290 to -304 (1993); N.D. CENT. CODE §§ 23-31-01 to -03 (1991); OHIO REV. CODE ANN. § 3734-34.37 (Anderson 1992); OKLA. STAT. ANN. tit. 27A, §§ 2-7-301 to -307 (West 1993); OR. REV. STAT. §§ 466.670, 466.675 (1992); 35 PA. CONS. STAT. ANN. § 6018.701 (West 1993); R.I. GEN. LAWS §§ 23-19.1 to -.39 (1989 & Supp. 1993); S.C. CODE ANN. §§ 44-56-20, 44-56-160, 44-56-170, 44-56-180 and 44-56-190 (Law. Co-op. 1985 & Supp. 1993); S.D. CODIFIED LAWS ANN. § 34A-11-24 (1992); TENN. CODE ANN. §§ 68-212-201 to -312 (1992); TEXAS WATER CODE ANN. §§ 26.261 to -.268, 26.301 to -.307 (West 1988 & Supp. 1994); UTAH CODE ANN. § 19-6-101 to -123 (1991 & Supp. 1993); VT. STAT. ANN. tit. 10, §§ 1251, 1282, and 1283 (1984 & Supp. 1992); VA. CODE ANN. §§ 10.1-1400 to -1429 (Michie 1993); WASH. REV. CODE ANN. §§ 70.105-.900 (West 1992 & Supp. 1993); W. VA. CODE §§ 20-5G-1 to -6 (1989); WIS. STAT. ANN. §§ 144.43-.79 (West 1989 & Supp. 1990); WYO. STAT. § 35-11-101 to -503 (1988 & Supp. 1993).

a typical remediation action, states already have a substantial, albeit secondary, role in the Superfund process.³²³ Even prior to the *Colorado* decision, states still submitted suggestions for sites to be included on the NPL³²⁴ and were afforded "substantial and meaningful involvement" in the initiation, development, and selection of remedial actions."³²⁵ Finally, states already had to agree to pay at least ten percent of the cost if Superfund money is used at a site³²⁶ and had to agree to maintain the site in the future.³²⁷

The universe of hazardous waste sites potentially requiring cleanup is more than either state or federal governments can address alone. With irreconcilable congressional enactments, federal court decisions, and executive branch approaches, the only clear cut conclusion to the cleanup problem is the three are unable to resolve the question of whether state law applies to military hazardous waste sites.³²⁸ However, resolution of federal-

³²³ Young, *supra* note 320, at 990.

³²⁴ 42 U.S.C. § 9605(a)(8)(B) (1988).

³²⁵ *Id.* § 9621(f)(1).

³²⁶ *Id.* § 9604(c)(3)(C).

³²⁷ *Id.* § 9604(c)(3)(B).

³²⁸ See Margaret Strand, *Federal-State Authority Disputes at Federal Facility Sites: A Study in Legislative Failure*, 4 FED. FAC. ENVTL. J. 10, 23 (1993).

state authority disputes is critical in order that all DoD sites can be eventually cleaned to the point some may ultimately be transferred for municipal and private uses. Even if control were to go to the states, the military would rather have clear direction regarding who controls facility cleanup rather than fight to maintain control under conditions of uncertainty and unpredictability.³²⁹

As such, while I am not advocating complete delegation of CERCLA authority without adequate control and oversight, which would likely result in differing cleanup quality and uneven treatment of responsible parties,³³⁰ I believe it is time to at least consider returning the Superfund initiative to the states and give real meaning to the words "substantial and meaningful"³³¹ in relation to the cleanup process.³³²

³²⁹ *Id.*

³³⁰ U.S. GENERAL ACCOUNTING OFFICE, HAZARDOUS WASTE SITES: STATE CLEANUP STATUS AND ITS IMPLICATIONS FOR FEDERAL POLICY 5 (Aug. 1989).

³³¹ See, Laurie Mourissette & Laurent R. Hourclé, *State Environmental Laws Redefine "Substantial and Meaningful Involvement,"* A.F. L. REV. 137 (1989).

³³² In this regard, CERCLA would simply be following in the footsteps of other environmental schemes with state decisionmaking authority such as that found in the Clean Air Act, 42 U.S.C. § 7410 (1988) (state implementation plans); Clean Water Act, 33 U.S.C. §§ 1342(b), 1370 (1988) (state permit programs); and the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6926, 6929, 2931, 6946-48, 6961, 6992f (1988) (state hazardous waste programs).

I believe the solution is a hierarchy within the law whereby NPL sites are governed exclusively by CERCLA, non-NPL sites by RCRA (if activities are subject to RCRA), and the remainder by state cleanup laws; or integrate CERCLA and RCRA requirements so that procedures for cleanup are fundamentally similar. An authorized state agency would be accorded flexibility in terms of process and procedures while being held to a level at least protective of human health and the environment as required by federal law. To ensure this end, at a CERCLA regulated site, states would be required to use national cleanup standards developed by EPA to insure a degree of consistency across the country. If a state, however, desires to select a response action achieving a level of cleanup more stringent than that provided for in the national standards, the state would be required to pay any incremental increase in response costs attributable to achieving the more stringent cleanup level.

Like it or not, as a result of *United States v. Colorado*, states are now equal partners in the hazardous waste cleanup process at military sites.³³³ However, in order to alleviate overlapping and conflicting cleanup laws, one entity must be in charge to reduce second guessing and

³³³ However, where a ROD has been executed, and a consent decree entered requiring a party to carry out that ROD, any inconsistent state requirements will still be pre-empted. See *United States v. Akzo Coatings of Am.*, 949 F.2d 1409 (6th Cir. 1991).

eliminate delays. I recommend the role of the states be significantly increased and a uniform authority be established. A hierarchy of authorities for DoD facility responses at both NPL and non-NPL sites should be developed and section 120(a)(4) amended as followed:³³⁴

(a) CERCLA is the sole authority at NPL sites;³³⁵

(b) qualified state cleanup programs have authority at non-NPL sites. To qualify states must;

(1) have passed or promulgated regulations with an opportunity for notice and comment;

(2) specify a readily ascertainable cleanup process;

(3) employ specific quantifiable risk based cleanup standards meeting or exceeding national based standards;

³³⁴ See Laurent R. Hourclé, *Subpart K of the National Contingency Plan, "The Missing Link" in the Federal Facilities Cleanup Program*, 4 FED. FAC. ENVTL. J. 401 (1993-4) ("a properly constructed Subpart K could alleviate . . . the continuing conflict as to what regulatory program (CERCLA, RCRA, federal, or state) or combination of programs should govern at an individual site"). *Id.* at 402.

³³⁵ CERCLA was amended to reflect that, if site is subsequently placed on the NPL, work already accomplished need not be redone.

(4) be equally applicable to other private,
state and municipal facilities;

(c) when neither of the above apply, RCRA
corrective action authority is used;

(d) in all other cases (non-NPL sites in
nonqualified states without corrective action
authority) CERCLA is the sole authority.

There are numerous benefits to this approach. This hierarchy avoids the problem of dual regulation, avoids changing lead agency authority at DoD sites where substantial work is already underway under CERCLA, and provides a substantial state role at non-NPL sites. At NPL sites, states would have existing CERCLA participation rights. Given that many states presently enforce cleanups at non-NPL sites, the concept of delegation of CERCLA authority only contemplates delegation of EPA's Superfund authority (NPL sites or imminent and substantial endangerment sites with a section 106 order). The benefits of an improved and enhanced role for states in the Superfund process and remedy selection would thus apply equally to federal sites.

DoD should be concerned that once an authority is

applied and a site has a known set of rules, they should be followed to conclusion. Once underway, progress will inevitably be hampered when authorities and processes are changed. Specifying the relationship of conflicting statutes at DoD sites is imperative; the recommended hierarchy is but one alternative.

C. RECOMMENDATIONS TO IMPROVE LAND TRANSFER

Coinciding with the reduction in uniformed personnel over the next several years will be the closure of DoD installations and the transfer of real property declared excess to military needs.³³⁶ A major component of this downsizing effort will be the Defense Base Closure and Realignment Act of 1990.³³⁷ The Act³³⁸ prescribes the closing

³³⁶ See Thomas J. Bartol et al., *Conducting Environmental Site Assessments for Federal Property Transfer*, 3 FED. FAC. ENVTL. J. 1 (1992).

³³⁷ Defense Base Closure and Realignment Act of 1990, Pub. L. No. 101-510, 104 Stat. 1808 (codified at 10 U.S.C. § 2687 (Supp. III 1991)).

³³⁸ Challenges to discretionary decisions made by the Commission on Base Realignment and Closure pursuant to the Base Realignment and Closure Act have been held by the courts to be nonjusticiable. See *National Federation of Fed. Employees v. United States*, 905 F.2d 400 (D.C. Cir. 1990). The Commission applies the following criteria in making its base selections: (1) current operational readiness; (2) availability and condition of land and facilities at both existing and potential receiving locations; (3) force requirements at receiving locations; (4) cost and manpower implications; (5) extent and timing of potential cost savings; (6) economic impact on base area community; (7) community support at the receiving locations;

and/or realignment of a substantial number of domestic military installations as part of the overall downsizing of U.S. forces.³³⁹ However, transfer of these installations to private or municipal control has been stalled by environmental contamination³⁴⁰ left behind by military operations.³⁴¹

The cleanup challenge at facilities marked for base closure is heightened because of pressure for expeditious transfer of the property to non-federal interests for economic development. State and local communities are understandably concerned about the impact of base closure and realignment on their particular community.³⁴² Timely

(8) environmental impact; and (9) the implementation process involved. *Id.*

³³⁹ For a background on the Act, see Daniel C. Steppick, *Military Mess: CERCLA Liability and the Base Closure and Realignment Act*, 59 J. AIR L. & COM. 449 (1993-94).

³⁴⁰ See Appendix B for a listing of NPL sites slated for base closure. Over 540 contaminated sites have been identified on bases scheduled to be closed with estimated expenses calculated at about \$900 million. U.S. CONGRESSIONAL BUDGET OFFICE, ENVIRONMENTAL CLEANUP ISSUES ASSOCIATED WITH CLOSING MILITARY BASES 3 (Aug. 1992).

³⁴¹ Keith Schneider, *Toxic Pollution Stalls Transfer of Military Sites*, N.Y. TIMES, June 29, 1991, at 3A.

³⁴² See, e.g., Herbert Sample, *Senate Strongly Backs Base-Closure Decisions*, SACRAMENTO BEE, Sept. 21, 1993, at A1 (no state is hit harder than California with over 100,000 direct and indirect jobs and \$4 billion in economic activity wiped out with base closings); Don Aucoin, *Fight to Save Military Bases*, BOSTON GLOBE, May 12, 1993, at 31 (scheduled military base closings and cutbacks will wreck economic

reutilization of these installations is essential in order to minimize the impact of economic dislocation to these affected communities due to lost jobs, failed businesses, and a diminished tax base.³⁴³

However, many military installations slated for closure are contaminated as a result of hazardous materials storage, spillage, or disposal. While closed and closing military facilities can supply a large amount of inexpensive land for future development, environmental and public health concerns brought on by this pre-existing contamination need to be addressed. Unfortunately, DERP policy fails to facilitate the rapid sale of these former military installations and it is anticipated even moderately contaminated bases will wait years before they are clean enough to transfer.³⁴⁴

Under the original provisions of CERCLA, Congress sought to ensure DoD could not escape responsibility for contamination on military installations.³⁴⁵ While section

havoc in N.Y., Mass., and Conn.).

³⁴³ See H.R. DOC. NO. 111, 102d Cong., 1st Sess. 73 (1991).

³⁴⁴ See Donald C. Dilworth, *Military Won't Clean Up Bases Before Closing Them*, TRIAL, Oct. 1990, at 14.

³⁴⁵ Section 120(h)(3) provides that, before a deed of transfer can take effect for federal property on which hazardous substances have been stored for one year or more or where hazardous substances were released or disposed of, the federal agency must provide a covenant warranting that

120(h)(3) made it clear agencies could not transfer liability for contaminated property to another but must actually remediate the contamination before sale, it raised additional questions of just when a remediation was deemed complete for purposes of section 120(h)(3) and whether agencies could segregate uncontaminated property from contaminated property and parcel transfers³⁴⁶ to private and municipal parties.

Congress sought to resolve the concerns over how to facilitate the transfer of base property to municipal and private developers³⁴⁷ by passing the Community Environmental Response Facilitation Act (CERFA) in October 1992.³⁴⁸ CERFA directs DoD to conduct a review of real property on closing

all remedial activity necessary has been taken before the date of transfer and any additional remedial action found to be necessary after transfer will be conducted by the agency. 42 U.S.C. §§ 9620(h)(3)(A)-(B) (1988). The Clinton administration has proposed deleting the language "stored for one year or more" from the Act. Superfund Reform Act of 1994, S. 1834, 103d Cong., 1st Sess. § 602.

³⁴⁶ See James M. Strock & Orchid Kwei, *Base Closure, Cleanup, and Reuse in California*, 3 FED. FAC. ENVTL. J. 403 (1992-93).

³⁴⁷ See, e.g., H.R. CONF. REP. NO. 986, 102d Cong., 2d Sess. 7 (1992).

³⁴⁸ Community Environmental Response Facilitation Act, Pub. L. No. 102-426, 106 Stat. 2174 (1992) (amending 42 U.S.C. § 9620(h)).

bases to identify uncontaminated parcels uncontaminated.³⁴⁹ After identification is complete, the results are then forwarded to EPA and appropriate state and local government officials. For property listed on the NPL, EPA must concur in the identification of uncontaminated property and the state must concur for property not listed on the NPL.³⁵⁰ The effect of a state or EPA non-concurrence is unclear.³⁵¹

³⁴⁹ Identification must consist of reviewing various sources of information including: (1) federal government records; (2) recorded chain of title documents; (3) aerial photographs; (4) visual inspection of the property and properties immediately adjacent; (5) to extent permitted, physical inspection of adjacent property; (6) reasonably obtainable federal, state, and local records of adjacent property where releases, storage or disposal of hazardous substances has occurred; and (7) interviews with current or former employees involved in operations on the property. 42 U.S.C. §§ 9620(h)(4)(A)(i)-(vii) (1988).

³⁵⁰ 42 U.S.C. § 9620(h)(4)(B) (1988).

³⁵¹ States will generally take the view non-concurrence means a parcel has not been identified under section 120(h)(4) and cannot be transferred as a clean parcel pursuant to CERFA. See John F. Seymour, *Environmental Issues Raised by Military Base Closings*, 4 FED. FAC. ENVTL. J. 379, 381 (1993). President Bush's Signing Statement for CERFA directed federal agencies to view a state non-concurrence only as a "statement of that official's view" rather than a bar to transfer of that property. President's Statement Upon Signing H.R. 4016, 28 WEEKLY COMP. PRES. DOC. 1976 (Oct. 26, 1992). Thus, the property could presumably still be transferred by an agency pursuant to section 120(h)(3) with a covenant warranting that all remedial action has been taken. The purpose of EPA concurrence is to give local communities assurances that the DoD's results are accurate and complete. It does not subject the government to any additional liability or responsibility it would not otherwise have. Protection against the presence of or damages caused by contamination due to the military's activities is already governed by section 120(h)(3), the warranty requirements in section 120(h)(4), the Federal Tort Claims Act, and other indemnification provisions of federal statutes. Therefore,

CERFA also amended CERCLA section 120(h)(3) by allowing for property to be transferred by deed at the point when cleanup remedies are constructed, installed and demonstrated to EPA to be properly and successfully operational. While these amendments would seem to have addressed Congressional concerns, several issues remain.

Section 120(h)(3) requires that "all remedial action necessary to protect human health and the environment . . . has been taken before the date of such transfer." The law does not define "all remedial action necessary," and this provision has been the subject of varying interpretations, particularly at DoD installations being closed. The law also fails to specify cleanup standards "necessary to protect human health and the environment." If the language were read to require cleanup levels must be achieved before property could be transferred, transfer could be delayed for years. Finally, Section 120(h)(3) does not define what it means to have "taken" remedial action when construction of a remedy is complete. EPA has proposed the language be read to allow transfer once a CERCLA remedy had been constructed and demonstrated to be operating successfully.³⁵² However,

EPA non-concurrence is unlikely to be an inhibiting factor.

³⁵² In a letter dated February 16, 1992, Don R. Clay, assistant administrator in the Office of Solid Waste and Emergency Response (OSWER) stated that:

It is EPA's view that, at an NPL site, where

some argue the section requires all health, safety, and environmental standards be met before the transfer of a deed can take place.³⁵³ Section 120(h) may have to be further amended to facilitate the transfer of uncontaminated property.

Interpreting section 120(h)(4)(A) to mean every hazardous waste site on a closing installation must be remediated before transferring any parcel of land is unnecessarily determinative to returning federal property to public or private beneficial use. CERFA merely specifies property is ready for transfer if the remedy has been selected and is being executed; the last drop of contaminated water does not have to come out of the ground before transfer. DoD can retain those hazardous waste sites requiring remediation and transfer the remaining parcels meeting the requirements of section 120(h). This permits beneficial use of the transferred property, potentially

a CERCLA record of decision determines what remedial action is necessary, the remedial action has been "taken" when construction of the remedy is complete, including a demonstration that the remedy is operating properly according to design specifications contained in the record of decision and remedial design.

cited in Raymond T. Swenson et al., Resolving the Environmental Complications of Base Closure, 3 FED. FAC. ENVTL. J. 283 (1992).

³⁵³ U.S. CONGRESSIONAL BUDGET OFFICE, ENVIRONMENTAL CLEANUP ISSUES ASSOCIATED WITH CLOSING MILITARY BASES 16 (August 1992).

generating employment and tax revenues to offset certain impacts of the base closure. CERCLA should be amended to include language specifically permitting parcelling of property transferred by the Department of Defense.

Some additional provisions warrant further clarification in light of the Base Realignment and Closure Act.

1. CERFA Identification Process. CERFA's identification and concurrence process in section 120(h)4) does not provide for any exceptions. On the other hand, the Act's goals seem to appear to limit applicability to those properties made available to communities to mitigate the adverse economic impact of base closure. Excluding intra-federal transfers, made pursuant to the Federal Property and Administrative Services Act,³⁵⁴ from the identification process would seem to satisfy CERFA's goal.³⁵⁵ CERFA should be amended to make it explicit that land transfer provisions do not apply when land is being transferred within the federal government.

³⁵⁴ Federal Property and Administrative Services Act of 1949, Pub. L. No. 81-152, 63 Stat. 377 (codified as amended at 40 U.S.C. §§ 471-544 (1988)).

³⁵⁵ The purpose of CERFA was to "require the Federal Government to identify property free of contamination for sale to non-Federal interests at closing Federal facilities at the earliest opportunity." 139 CONG. REC. H11,824 (daily ed. Oct. 5, 1992) (statement of Rep. Panetta).

2. *Termination of Government Operations.* CERFA is triggered when there is a termination of government operations. However, there is no clear definition of "termination of government operations" in the statute. This could be interpreted to include termination of operations on federal lands (such as closure of a firing range or termination of an on-base concession); sale of land acquired through default of loans; or termination of one of many on-site functions (such as relocation of a support operation on a military base). It is unclear whether Congress intended that termination of these activities would require application of CERFA, particularly since CERFA seems geared towards economic redevelopment for the private sector, rather than these kinds of transfer issues. Section 120(h)(4) should be amended to exclude from the definition of "termination of government operations" property obtained through termination of third party activities authorized or encouraged by other statutes.

3. *Non-industrial Activities.* CERCLA requires federal agencies to evaluate sites for petroleum and oil contamination. DoD often devotes large sectors of land at installations to "non-industrial" activities such as residences and recreation areas, where more "incidental" releases of petroleum and oil are associated with routine household or non-industrial activities. These household

hazardous materials, products and wastes could qualify as hazardous substance for purposes of section 120(h). It is not clear whether CERCLA was intended to address these de minimis types of storages and releases.

Section 120(h) should be amended to include only areas with petroleum and oil contamination caused by industrial activities or else create a reportable quantity requirement for purposes of the section. This would allow property to be transferred where a hazardous substance release or petroleum storage is solely associated with household related activities. CERCLA should be amended to exempt household product or wastes from the definition of hazardous substances for purposes of CERFA (excluding landfills and dumps).

VI. CONCLUSION

*Man has lost the capacity to foresee and to forestall. He will end by destroying the earth.*³⁵⁶

"For fundamental and deeply rooted psychological reasons, as well as more mundane utilitarian considerations, it is characteristic of man to bury that which he fears and

³⁵⁶ Albert Schweitzer, quoted in RACHEL CARSON, SILENT SPRING i (1962).

wishes to rid himself of. In today's industrialized society, however, the routine practice of burying highly toxic chemical wastes has resulted in serious threats to the environment and to public health."³⁵⁷ It is for this reason the U.S. military's toxic and hazardous waste legacy has become a widespread and challenging problem. Cleanup progress cannot be attained simply by spending billions of dollars. The time has come to reconsider the basic assumptions driving DoD's environmental restoration program and the upcoming Superfund reauthorization process is the perfect opportunity to make substantive change. Congress must clarify the unclear portions of CERCLA and reexamine others where underlying congressional assumptions have proved faulty.

At a minimum, review must be given to the remedy selection process to permit different levels of restoration for hazardous waste sites based on their probable future use rather than restoration of facilities to pristine environmental conditions. To reduce overlapping governmental authority, control over implementation of remedial actions at DoD facilities should be delegated to the states with EPA maintaining an advisory or oversight role. However, to insure consistency in the process,

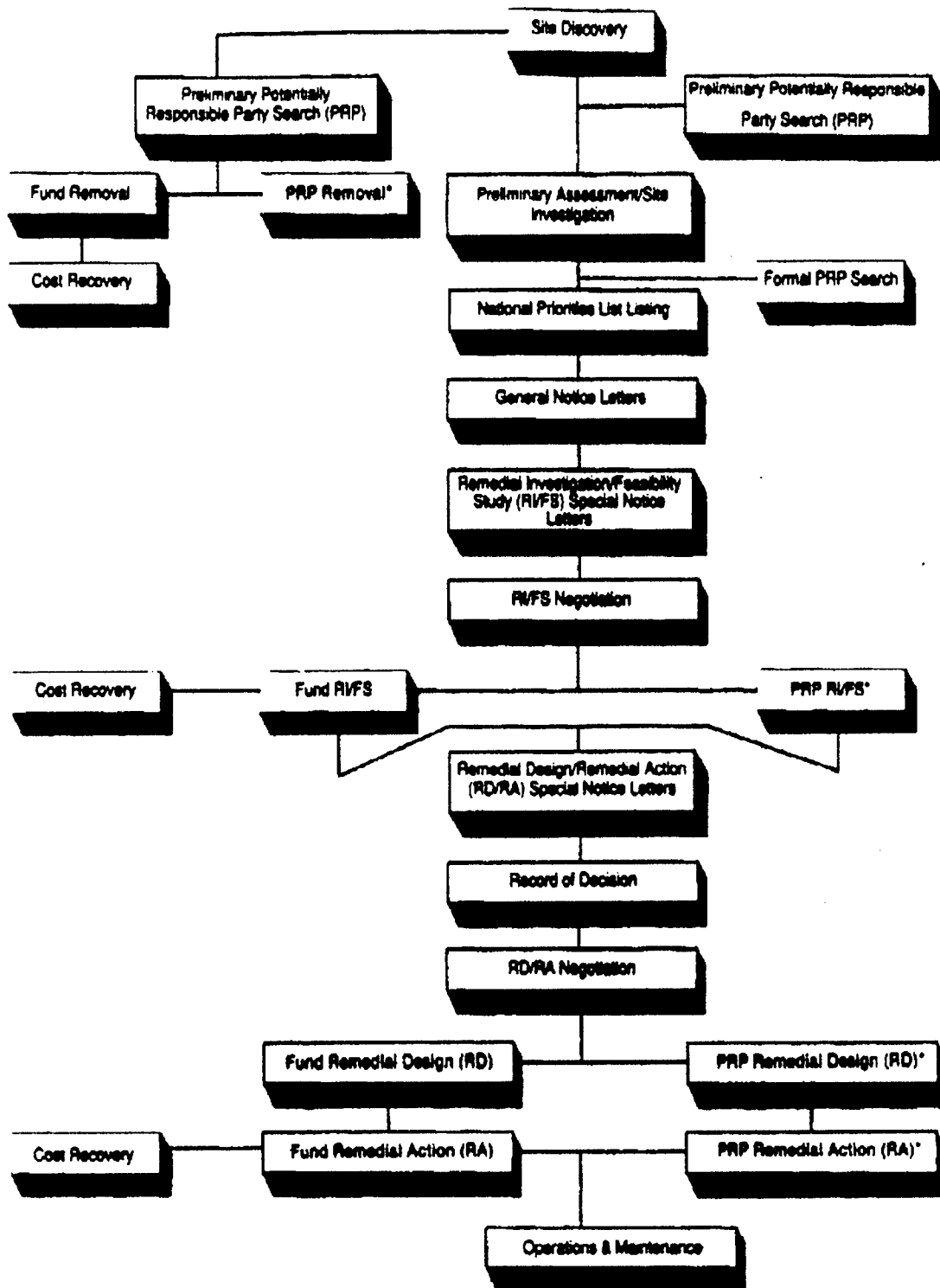
³⁵⁷ United States v. Price, 523 F. Supp. 1055, 1057 (D.N.J.), *aff'd* 688 F.2d 204 (3d Cir. 1982).

national cleanup standards and presumptive remedies for common contaminants must be developed by EPA and implemented by the states. Finally, clarification is necessary to expedite transfer of uncontaminated portions of DoD facilities to the private and/or municipal sector.

Of all the factors determining the quality of our environment, the most fundamental is the use we make of our land; for the "face and character of our country are determined by what we do with America and its resources."³⁵⁸ I believe the Superfund program, and similar federal cleanup efforts such as the Defense Environmental Restoration Program, must be improved if we are to ever protect human health and the environment without compromising our scarce natural and financial resources. The time is now. Man does have the capacity to change. Acting on that capacity is the next consequential step.

³⁵⁸ Thomas Jefferson, *quoted in* U.S. ENVIRONMENTAL PROTECTION AGENCY, OFFICE OF RESEARCH & MONITORING, LAND USE AND THE ENVIRONMENT: AN ANTHOLOGY OF READINGS 1 (1974).

Superfund Cleanup and Enforcement Process



*EPA also seeks to recover its costs for the oversight of these activities.

DoD Installations Listed On the National Priorities List,
Proposed for Inclusion, and Base Closure Installations
(as of 30 September 1993)

Installation	State	NPL	Proposed for NPL	Base Closure
ARMY				
Aberdeen PG (2 sites)	MD	x		
Alabama AAP	AL	x		x
Anniston AD	AL	x		
ARDEC: Picatinny Arsenal	NJ	x		
Cameron Station	VA			x
Cornhusker AAP	NE	x		
Defense Mapping Agency (Herndon)	VA			x
Ft. Benjamin Harrison	IN			x
Ft. Des Moines	IA			x
Ft. Devens	MA	x		x
Ft. Devens (Sudbury Trng Annex)	MA	x		
Ft. Dix	NJ	x		x
Ft. Lewis (2 sites)	WA	x		
Ft. Meade	MD			x
Ft. Monmouth	NJ			x
Ft. Ord	CA	x		x
Ft. Richardson	AK		x	
Ft. Riley	KS	x		
Ft. Sheridan	IL			x
Ft. Wainwright	AK	x		
Ft. Wingate	NM			x
Hamilton Army Airfield	CA			x
Indiana AAP	IN			x
Iowa AAP	IA	x		
Jefferson PG	IN			x
Joliet AAP (2 sites)	IL	x		
Kapalama Military Res.	HI			x
Lake City AAP	MO	x		
Letterkenny AD (2 sites)	PA	x		
Lexington AD	KY			x
Lone Star AAP	TX	x		
Longhorn AAP	TX	x		
Lousiana AAP	LA	x		
Material Tech. Lab.	MA		x	x
Milan AAP	TN	x		
Natick Labs	MA		x	
Navajo AD	AZ			x
Presidio of San. Fran.	CA			x
Pueblo AD	CO			x
Redstone Arsenal	AL		x	
Riverbank AAP	CA	x		
Rocky Mountain Arsenal	CO	x		
Sacramento AD	CA	x		x
Savanna ADA	GA	x		
Schofield Barracks	HI	x		
Seneca AD	NY	x		
Tobyhanna AD	PA	x		
Tooele AD	UT	x		
*Twin Cites AAP	MN	x		
Umatilla AD	OR	x		x

* listed as New Brighton/Arden Hills, not as a federal facility.

PG: Proving Ground
AD: Army Depot

AAP: Army Ammunition Plant
ADA: Army Depot Activity

Installation	State	NPL	Proposed for NPL	Base Closure
NAVY				
Adak NAS	AK		x	
Alameda NAS	CA			x
Albany MCLB	GA	x		
Allegheny Ballis. Lab	WV		x	
Bangor NSB (2 sites)	WA	x		
Barbers Point NAS	HI			x
Barstow MCLB	CA	x		
Bedford NWIRP	MA		x	
Brunswick NAS	ME	x		
Camp Lejune MCB	NC	x		
Camp Pendleton MCB	CA	x		
Cecil Field NAS	FL	x		x
Charleston NSY/NS	SC			x
Chase Field NAS	TX			x
Concord NWS	CA		x	
Dahlgren NWSC	VA	x		
Davisville NCBC	RI	x		x
Earle NWS	NJ	x		
El Toro MCAS	CA	x		x
Fridley NIROP	MN	x		
Jackson Pk. Hsg. Cmplx.	WA		x	
Jacksonville NAS	FL	x		
Keyport NUMC	WA	x		
Lakehurst NAWCAD	NJ	x		
Long Beach NS	CA			x
Mare Island NSY	CA			x
Moffett Field NAS	CA	x		x
New London NSB	CT	x		
Newport NETC	RI	x		
Orlando NTC	FL			x
Pearl Harbor Complex	HI	x		
Pensacola NAS	FL	x		
Philadelphia NSY/NS	PA			x
Port Hadlock Det.	WA		x	
Portsmouth NSY	ME		x	
Puget Sound NSY	WA		x	
Quantico MCCDC	VA		x	
Sabana Seca NSG	PR	x		
San Diego NTC	CA			x
South Weymouth NAS	MA		x	
Treasure Island NS	CA			x
Treasure Island NS (Hunters Pt. Annex)	CA	x		x
Tustin MCAS	CA			x
Warminster NAWCAD	PA	x		
Whidbey Island NAS (2 sites)	WA	x		
Yorktown NWS	VA	x		
Yuma MCAS	AZ	x		

MCLB:	Marine Corps Logistics Base	NAS:	Naval Air Station
MCAS:	Marine Corps Air Station	NSG:	Naval Security Group
NCBC:	Naval Const. Battalion Ctr.	NWS:	Naval Weapons Station
NSWC:	Naval Surface Weapons Ctr.	MCB:	Marine Corps Base
NSY:	Naval Shipyard	NTC:	Naval Training Center
NUWC:	Naval Undersea Warfare Center	NSB:	Naval Submarine Base
NETC:	Naval Education & Training Center	NS:	Naval Station
NIROP:	Naval Industrial Reserve Ordnance Plant		
NAWCAD:	Naval Air Warfare Center Aircraft Division		
MCCDC:	Marine Corps Combat Development Command		

Installation	State	NPL	Proposed for NPL	Base Closure
AIR FORCE				
AFP #4	TX	x		
*AFP #44	AZ	x		
AFP PKJS	CO	x		
Andersen AFB	GU	x		
Bergstrom AFB	TX			x
Carswell AFB	TX			x
Castle AFB	CA	x		x
Chanute AFB	IL			x
Dover AFB	DE	x		
Eaker AFB	AR			x
Edwards AFB	CA	x		
Eielson AFB	AK	x		
Ellsworth AFB	SD	x		
Elmendorf AFB	AK	x		
England AFB	LA			x
Fairchild AFB	WA	x		
F.E. Warren AFB	WY	x		
George AFB	CA	x		x
Griffis AFB	NY	x		x
Grissom AFB	IN			x
Hanscom AFB	MA		x	
Hill AFB	UT	x		
Homestead AFB	FL	x		x
K.I.Sawyer AFB	MI			x
Langley AFB	VA		x	
Loring AFB	ME	x		x
Lowry AFB	CO			x
Luke AFB	AZ	x		
Macdill AFB	FL			x
March AFB	CA	x		x
Mather AFB	CA	x		x
McChord AFB	WA	x		
(2 sites)				
McClellan AFB	CA	x		
Minneapolis Reserve	MN	x		
Mountain Home AFB	ID	x		
Myrtle Beach AFB	SC			x
Norton AFB	CA	x		x
Otis ANGB	MA	x		
Pease AFB	NH	x		x
Plattsburgh AFB	NY	x		x
Richards-Gebhauer	MO			x
Rickenbacker ANGB	OH			x
Robins AFB	GA	x		
Tinker AFB	OK	x		
Travis AFB	CA	x		
Williams AFB	AZ	x		x
Wright-Patterson AFB	OH	x		
Wurtsmith AFB	MI			x

* listed as Tucson Intl. Airport, not as a federal facility

Installation	State	NPL	Proposed for NPL	Base Closure
DEFENSE LOGISTICS AGENCY				
Memphis DDD	TN	x		
Ogden DDD	UT	x		
Richmond DGSC	VA	x		
Philadelphia DPSC	PA			x
Sharpe Site, DDRW	CA	x		
Tracy Site, DDRW	CA	x		

FORMERLY USED DEFENSE SITES

Fisher-Calo	IN	x
Hastings Ground	NE	x
Water Contamination		
Jet Propulsion Lab	CA	x
Malta Rocket Fuel Area	NY	x
Marathon Battery Corp.	NY	x
Moses Lake Wellfield	WA	x
Contamination		
National Presto Ind.	WI	x
Nebraska Ordnance Plt.	NE	x
New Hanover County	NC	x
Airport Burn Pit		
Middleton Airfield	PA	x
Ordnance Works	WV	x
Disposal Area		
Phoenix-Goodyear Arprt	AZ	x
Sangamo-Electric Dump	IL	x
Weldon Spring Ordnance	MO	x
Works		
West Virginia Ordnance	WV	x
Works		

DDRW: Defense Distribution Region, West
 DPSC: Defense Personnel Support Center
 DGSC: Defense General Supply Center
 DDD: Defense Distribution Depot